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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

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A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—ON SOME OMISSIONS OF INTROSPECTIVE PSYCHOLOGY.

By Professor William James, Harvard University.

As is well known, contradictory opinions about the value of introspection prevail. Comte and Maudsley, for example, call it worthless; Ueberweg and Brentano come near calling it infallible. Both opinions are extravagances; the first for reasons too obvious to be given, the second because it fails to discriminate between the immediate *feltness* of a mental state and its perception by a subsequent act of reflection. The *esse* of a mental state, the advocates of infallibility say, is its *sentiri;* it has no recondite mode of being "in-itself". It must therefore be felt as it really is, without chance of error. But the feltness which is its essence is its own immanent and intrinsic feltness at the moment of being experienced, and has nothing to do with the way in which future conscious acts may feel about it. Such *sentiri* in future acts is not what is meant by its *esse*. And yet such *post-mortem sentiri* is the only way in which the introspective psychologist can grasp it. In its bare immediacy it is of no use to him. For his purposes it must be more than experienced; it must be remembered, reflected on, named, classed, known, related to other facts of the same order. And as in the naming, classing, and knowing of things in general we are notoriously fallible, why not also here? Comte is quite right in laying stress on the fact that a feeling, to be named, judged, or perceived, must be already past. No subjective state, whilst present, is its own object; its object is always something else. There are, it is true, cases in which we appear to be naming our present feeling, and so to be experiencing and observing the same inner fact at a single stroke, as when we say "I feel tired," "I am angry," &c. But these are illusory, and a little attention unmasks the illusion. The present conscious state, when I say "I feel tired," is not the direct feeling of tire; when I say "I feel angry," it is not the direct feeling of anger. It is the feeling of *saying-I-feel-tired*, of *saying-I-feel-angry*,—entirely different matters, so different that the fatigue and anger apparently included in them are considerable modifications of the fatigue and anger directly felt the previous instant. The act of naming them has momentarily detracted from their force.

The only sound grounds on which the infallible veracity of the introspective judgment might be maintained, are empirical. If we have reason to think it has never yet deceived us, we may continue to trust it. This is the ground actually maintained by Herr Mohr in a recent little work.[1] "The illusions of our senses," says this author, "have undermined our belief in the reality of the outer world; in the sphere of inner observation our confidence is intact, for we have never found ourselves to be in error about the reality of an act of thought or feeling. We have never been misled into thinking we were *not* in doubt or in anger when these conditions were really states of our consciousness."

But, sound as the reasoning here is, I fear the premisses are not correct; and I propose in this article to supplement Mr. Sully's chapter on the Illusions of Introspection, by showing what immense tracts of our inner life are habitually overlooked and falsified by our most approved psychological authorities.

When we take a rapid general view of the wonderful stream of our consciousness, what strikes us first is the different *pace* of its different portions. Our mental life, like a bird's life, seems to be made of an alternation of flights and perchings. The rhythm of language expresses this, where every thought is expressed in a sentence, and every sentence closed by a period. The resting-places are usually occupied by sensorial imaginations of some sort, whose peculiarity is that they can be held before the mind for an indefinite time, and contemplated without changing; the places of flight are filled with thoughts of relations, static or dynamic, that for the most part obtain between the matters contemplated in the periods of comparative rest.

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[1] *Grundlage der empirischen Psychologie*, Leipzig, 1882, p. 47.

Let us call the resting-places the "substantive parts," and the places of flight the "transitive parts," of the stream of thought. We may then say that the main end of our thinking is at all times the attainment of some other "substantive" part than the one from which we have just been dislodged. And we may say that the main use of the transitive parts is to lead us from one substantive conclusion to another. Of this perhaps more hereafter.

Now the first difficulty of introspection is that of seeing the transitive parts for what they really are. If they are but flights to a conclusion, stopping them to look at them before the conclusion is reached is really annihilating them. Whilst if we wait till the conclusion *be* reached, it so exceeds them in vigour and stability that it quite eclipses and swallows them up in its glare. Let anyone try to cut a thought across in the middle and get a look at its section, and he will see how difficult the introspective observation of the transitive tracts is. The rush of the thought is so headlong that it almost always brings us up at the conclusion before we can arrest it. Or if our purpose is nimble enough and we do arrest it, it ceases forthwith to be itself. As a snowflake-crystal caught in the warm hand is no longer a crystal but a drop, so, instead of catching the feeling of relation moving to its term, we find we have caught some substantive thing, usually the last word we were pronouncing, statically taken, and with its function, tendency and particular meaning in the sentence quite evaporated. The attempt at introspective analysis in these cases is in fact like seizing a spinning top to catch its motion, or trying to turn up the gas quickly enough to see how the darkness looks. And the challenge to *produce* these psychoses, which is sure to be thrown by doubting psychologists at anyone who contends for their existence, is as unfair as Zeno's treatment of the advocates of motion, when, asking them to point out in what place an arrow *is* when it moves, he argues the falsity of their thesis from their inability to make to so preposterous a question an immediate reply.

If holding fast the transitive parts of thought's stream, so as to observe them, be the first great difficulty of introspection, then its first great fallacy must necessarily be a failure to register them and give them their due, and a far too great emphasis laid on the more substantive parts of the stream. Accordingly we find that the orthodox empirical psychologists, whether of England, Germany, or France, record under the name of images, *Vorstellungen*, or ideas, only such representations as have objects that can be brought to the distinct focus of attention and there stably held in view. Hume's fantastical assertion that we can form no idea of a thing with either quality or quantity without representing its exact degrees of each, has remained an undisputed dogma in nominalistic minds, until Mr. Galton and Prof. Huxley, or perhaps M. Taine, first called it in question. Strange that so patent an inward fact as the existence of "blended" images could be overlooked! Strange that the assertion could virtually be made that we cannot imagine a printed page without at the same time imagining every letter on it—and made too by a school that prided itself particularly on its powers of observation! However, of such blunders is the history of psychology composed.

But if blurred and indistinct substantive states could be systematically denied, *a fortiori* was it easy to deny that *transitive* states, considered as segments of the stream of sentiency, have any existence at all. The principal effort of the Humian school has been to abrogate relations, not only from the sphere of reality, but from the sphere of consciousness; most of them being explained as words, to which no definite meanings, inner or outer, attach. The principal effort of the Platonising schools has been to prove that, since relations are unquestionably perceived to obtain between realities, but as unquestionably cannot be perceived through any modifications of the stream of subjective sentiency comparable in nature with those through which the substantive qualities of things are perceived, they must needs be perceived by the immediate agency of a supersensible Reason, the omission to do homage to which is for the Platonists the vital defect in the psychological performances of the opposite school.

The second great fallacy of introspection, then, is the ignoring of the fact that a peculiar modification of our subjective feeling corresponds to our awareness of each objective relation, and is the condition of its being known. To Mr. Spencer belongs the honour of having exploded this fallacy, in a few pages that seem to have made but small impression on his contemporaries, but which I cannot help regarding as by far the most important portion of his *Principles of Psychology*. In § 65 of that work it is distinctly laid down that, subjectively considered, "a relation proves to be itself a kind of feeling,—the momentary feeling accompanying the transition from one conspicuous feeling to another conspicuous feeling"; and that, "notwithstanding its extreme brevity, its qualitative character is appreciable". The phrase "feeling of relation" will be sure to shock certain fastidious ears, but I nevertheless think we had better use it. Surely if any objective truth whatever can come to be known during, and through the instrumentality of, a feeling, there seems no *a priori* reason why a relation should not be that truth; or why, since the feeling has no proper subjective name of its own, we should hesitate to psychologise about it as "the feeling of that relation". There is no other way of talking about it at all.

But, though I have praised Mr. Spencer for being the first to use the phrase, I cannot praise him for having seen very deeply into the doctrine. Like most English psychologists, he tries to reduce the number of relations among things to a minimum; and in other passages says they are limited to likeness and unlikeness, coexistence in space and sequence in time. Whether this be true of *real* relations, does not here concern us. But it is certainly false to say that our *feelings* of relation are of only these four kinds. On the contrary, there is not a conjunction or a preposition, and hardly an adverbial phrase, syntactic form, or inflection of voice, in human speech, that does not express some shading or other of relation which we at some moment actually feel to exist between the larger objects of our thought. If we speak objectively, it is the real relations that appear revealed; if we speak subjectively, it is the stream of consciousness that matches each of them by an inward colouring of its own. In either case the relations are numberless, and no existing language is capable of doing justice to all their shades.

We ought to say a feeling of *and*, a feeling of *if*, a feeling of *but*, and a feeling of *by*, quite as readily as we say a feeling of *blue* or a feeling of *cold*. Yet we do not: so inveterate has our habit become of recognising the existence of the substantive parts alone, that language almost refuses to lend itself to any other use. In a later place we shall see how the analogy of speech misleads us in still other ways. The Empiricists have always dwelt on its influence in making us suppose that where we have a separate name, a separate thing must needs be there to correspond with it; and they have rightly denied the existence of the mob of abstract entities, principles and forces, in whose favour no other evidence than this could be brought up. But they have said nothing of the obverse error, which in psychology is just as bad, the error, namely, of supposing that where there is *no* name no entity can exist. All *dumb* psychic states have, owing to this error, been coolly suppressed; or, if recognised at all, have been named after the substantive perception they led to, as thoughts "about" this object or "about" that, the stolid word *about* engulphing all their delicate idiosyncracies in its monotonous sound. Thus the greater and greater accentuation and isolation of the substantive parts have continually gone on.

But the worst consequence of this vicious mode of mangling thought's stream is yet to come. From the continuously flowing thing it is, it is changed into a "manifold," broken into bits, called discrete; and in this condition, approved as its authentic and natural shape by the most opposite schools, it becomes the topic of one of the most tedious and interminable quarrels that philosophy has to show. I do not mean to say that the "Associationist" manner of representing the life of the mind as an agglutination in various shapes of separate entities called ideas, and the Herbartian way of representing it as resulting from the mutual repugnancies of separate entities called *Vorstellungen*, are not convenient formulas for roughly symbolising the facts. So are the fluid-theories of electricity, the emission-theory of light, the archetype-theory of the skeleton, and the theory that curves are composed of small straight lines. But, if taken as literal truth, I say that any one of these theories is just as false as any other, and leads to as pernicious results. The Associationist and the Herbartian psychologies are both false and for one and the same reason, that what God has joined together they resolutely and wantonly put asunder. It would be calamitous for us, *à propos* of this matter, to get embogged in a metaphysical discussion about what real unity and continuity are. So I hasten to say that, by the continuity of the mental stream, all I here contend for is the absence of *separate* parts in it. It is for the assertors of separate parts to tell us what they mean by their separateness—a thing which (so far as I know) they have never done, except when the Kantians say it is something that nothing short of the agency of categories working under a transcendental Ego can overcome. But, be the definition of the separateness of the parts what it may, the burden of proving its existence lies with its friends. For the stream of our feeling is sensibly continuous, like time's stream.[1] This is surely the natural way of viewing it in the first instance, and as an empirical fact. It presents itself as a continuum. It is true that by it are revealed to us a multiplicity of what we are pleased to consider separate *objects*; but it ought to be proved, not simply assumed, that the proper way of describing this fact is to say we have *a cluster of feelings* as numerous as the objects, and not to say that we have a *feeling of the cluster* of objects, however numerous these may be. The whole cluster is, if apprehended at all, apprehended in one *something*. Why not as well in one subjective modification or pulse of feeling, as in one Ego? Of course this *naïve* and natural way of describing the stream of knowledge ought not to prejudge the results of analysis made later on, and such analysis might show an Ego, and ever so much besides. But the ordinary plan of talking of a plurality of separate feelings from the first does prejudge the question, and abandon altogether the empirical and natural-history point of view.

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[1] Of course I speak only of tracts of it uninterrupted by sleep or other unconsciousness.

And see the fruits of prejudging a matter like this, see the two schools at work!

The Empiricists, whether English or German, start with their pluralism of psychic entities, ideas or *Vorstellungen*; show their order and connexion with each other; and then treat this order—which in the first instance appears as an object visible only to the psychologist, and recorded by him as a sort of physical fact—as equivalent to a mental fact apprehensible from within the series, and resulting in a modification of the manner in which the entities feel *themselves*.

The Rationalists immediately protest that the conclusions in this account are not warranted by the premisses, that the ideas or *Vorstellungen*, assumed as distinct psychic factors out of which mind is to be built up, must be kept *pure* during all the processes through which the psychologist leads them; and, that if kept pure, the reciprocal order or relation in which they may happen objectively to exist, will in no degree affect their manner of *being felt*. If the idea red is the idea red, it will be just that idea and nothing farther, whether the idea green has preceded it or not. The bald external fact of its sequence to green and its contrast to green will not make it aware of itself *as a fact* so sequent and so contrasted. Such awareness, if realised at all, could only be realised by a third psychic entity, to which the green and the red in their purity should be alike external and yet alike present; be known as separate and contrasted, and yet have the separateness overcome and the contrast removed by the way in which they lie together in the synthetic unity of the relation in which they are perceived. Such a third psychic entity cannot be a compound of the ideas themselves; for ideas cannot compound themselves, and if they could the result would be a merging into a "mean" and not, as here, a preservation of individuality intact; it cannot be a link or hyphen[1] or any sort of *intermediary* to make the ideas *continuous*, for that, though between, would be really external to, both ideas, and be merely a third feeling on its own account, as ignorant of the other two as they are ignorant of each other. Not any of these things can it be; not any fact of sensibility whatever, but a fact of an altogether higher order, to which all facts of sensibility are as the dust it treads on, an *act*, unnameable but by its own name, which is *intelligence*, inimitable in its function, which is *relating*, unique in its agent, which is the *Ego*, *self*, or *me*.

Both schools make then the same baseless hypothesis at the outset—the hypothesis that feeling is discontinuous by nature. The Kantians, Platonisers, or whatever one may please to call them, make another hypothesis to neutralise it, and so save the appearances.[2] The Sensationalists, unwilling to admit the supernatural principle, end with the philosophical melancholy of a Hume at the conclusion of his treatise, or with Mill's dismal confession of failure at the close of his chapter on the Psychological Theory of Mind.

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[1] Such "hyphens," it may be said in passing, seem to be the feelings of relation Mr. Spencer has in mind in the section of his *Psychology* to which reference was made a short time back.

[2] Our Hegelian Platonisers will of course protest that *their* withers are unwrung by this indictment, and that the Ego they contend for is no quasi-mechanical power working from without on detached materials, but only a name for the fact that what we have called the segments of the stream are consciously *for* each other. The question is a delicate one to decide. My own impression is that practically they are often tempted; and that the form the temptation takes is that of dropping into the old-fashioned psychic dualism. The Platonising mood is essentially dualistic, for it is essentially worshipful; and every object of worship needs the foil of a principle of evil to set off its lustre. Sentiency as a detached principle is therefore almost indispensable to this habit of philosophising. Every church needs its devil, and sense and its works are the devil of the Platonic congregation. The most amusing proof of the Platonic demand for a dualistic psychology is given by the always delicious Ferrier, who, in Proposition 10 of his *Institutes*, affirms Plato to have meant nothing more by his intelligible world than ordinary men mean by their sensible world; but who, instead of remaining satisfied with this promising reduction, immediately adds: "but then his sensible world must be moved a peg downwards. It must be thrust into the regions of nonsense. It must be called, as we have properly called it, . . . the nonsensical world, the world of pure infatuation, of downright contradiction, of unalloyed absurdity." Why? Not for any evidence he gives that such a world as this *exists*, any more *intra* than *extra mentem*; but apparently for the sole reason that an evil principle may never fail to be at hand, on which our higher nature may, when occasion requires, exert its powers of disdain.

But if we descend to the root of the trouble and deny the initial hypothesis, all difficulties and all need of discussion disappear at a stroke. And in truth there is no evidence whatever for supposing the pure atomic ideas of red and yellow, and the other elements of mental structure, to exist at all. They are abstractions, mere fictitious psychic counterparts to those elementary qualities of which we come to believe the real world is made up, but no one of them is an actual psychic fact. Whenever an elementary quality of the outer world is thought by us, the vehicle of the thinking is a feeling representing a highly complex object, that quality in relation with something else. Let us consider the mental stream and try to see what its constituents are like. Every one will admit that, as he thinks, a procession of varying objects, now simple, now complex in the extreme, passes before his attention, and that each one of these objects, whatever be its character, is accompanied by some sort of modification of his mental condition, of his subjective feeling, of the *wie ihm zu Muthe ist*, as Lotze would say. Even the advocates of an eternally identical Ego will confess that it must know its objects, *quâ* changing, in and by and through changing states, affections, acts, or attitudes, which are modifications, however superficial, of its identity. We can then represent, if not the whole, at least the changing part of the subjective stream by a continuous line, and if, as psychologists, we wish to isolate any portion of it for examination, we can symbolise that isolation by making cross-strokes. But, as Mr. Hodgson has so admirably shown, the cross-strokes do not pre-exist. They are "*artefacta*"; and the natural function of every segment of the line is to lead continuously into the next segment and carry consciousness along unbroken.

Now what differences obtain between the segments of the subjective stream—between the intervals scored off upon the line? Their differences of character must at least be as great as the differences of the objects they severally are aware of, or help to make known,—whichever form of expression one prefer; otherwise there would be a difference of perception without any subjective sign or symptom, which is absurd.

If then the fact known be the-sequence-of-green-to-red-

and-the-contrast-of-these-two-colours, the state of mind in which that fact comes to knowledge must be quite other than the state of mind in which either pure red or pure green comes to knowledge. In other words, if we start the stream with a feeling of pure red as its first segment, we must follow that up with a second segment which is a feeling of green-as-sequent-upon-the-red-and-contrasted-with-it ; or, if we insist on having a "pure" feeling of green, we may let it come in the second segment, and then follow with a third in which the complex relation of the objects of the first two segments is perceived. In either case, the stream must contain segments that are not "pure" elementary feelings. It must contain feelings of qualities-in-relation as well as of qualities absolute. But these feelings do not cease for that to be consubstantial with the rest of the stream. They can all be figured in the same straight line. They involve no new psychic dimension, as when the transcendentalists, after letting a number of "pure" feelings successively go "bang," bring their *deus ex machinâ* of an Ego swooping down upon them from his Olympian heights to *make* a cluster of them with his wonderful "relating thought".

The only thing that can see the pure feelings as a cluster (if pure feelings there be) is a later segment of the stream, to which the "pure" segments and their content appear as objects. It is a peculiarity of the stream that its several parts are susceptible of becoming objects for each other. We cannot explain this peculiarity any more than we can explain any other cognition. As a matter of fact, *every* segment of the stream is cognitive, and seems to look at an object other than itself; and when this object turns out to be a past segment, we say the present one remembers it. The present one in our supposed case is the remembrance of something complex, but that does not keep it from being a single segment. All the arguments used by the transcendentalists to prove the real unity of the Ego, the oneness of the relating principle, apply perfectly to the case before us, and forbid us for an instant to suppose that the segment in which a complex fact is remembered is not just one feeling and no more. Whatever is known *together* is and must be known through a single modification of thought's stream. When I think the seven colours of the rainbow, I do not have seven thoughts of a colour, and then a thought of a bow; that would be eight thoughts. What I have is just one thought of the whole object. And the first reasonable word has yet to be said to prove that such a "thought" as this is not, when considered in its subjective constitution, and apart from its cognitive function, also a "feeling," as specific and unique as the simplest affection of consciousness.

The demand for atoms of feeling, which shall be real units, seems a sheer vagary, an illegitimate metaphor. Rationally, we see what perplexities it brings in its train; and empirically, no fact suggests it, for the actual contents of our minds are always representations of some kind of an *ensemble*. From the dawn of an individual consciousness to its close, we find each successive pulse of it capable of mirroring a more and more complex object, into which all the previous pulses may themselves enter as ingredients, and be known. There is no reason to suppose that the same feeling ever does or can recur again. The same *thing* may recur and be known in an indefinite number of successive feelings; but does the least proof exist that in any two of them it is represented in an identical subjective state? All analogy points the other way. For when the identical thing recurs, it is always thought of in a fresh manner, seen under a somewhat different angle, apprehended in different relations from those in which it last appeared. And the feeling cognisant of it is the unitary feeling of it-in-those-relations, not a feeling of it-pure *plus* a second feeling, or a supernatural "thought," of the relations. We are so befogged by the suggestions of speech that we think a constant thing, known under a constant name, ought to be known by means of a constant mental affection. The ancient languages, with their elaborate declensions, are better guides. In them no substantive appears "pure," but varies its inflection to suit the way it is known. However it may be of the stream of real life, of the mental river the saying of Herakleitos is probably literally true: we never bathe twice in the same water there.

How could we, when the structure of our brain itself is continually growing different under the pressure of experience? For an identical feeling to recur, it would have to recur in an unmodified brain, which is an impossibility. The organ, after intervening states, cannot react as it did before they came.

If we are ever to be entitled to make psychological inferences from brain-processes, we should make them here in favour of the view I defend. The whole drift of recent brain-inquiry sets towards the notion that the brain always acts as a whole, and that no part of it can be discharging without altering the tensions of all the other parts. The best symbol for it seems to be an electric conductor, the amount of whose charge at any one point is a function of the total charge elsewhere. Some tracts are always waning in tension, some waxing, whilst others actively discharge. The states of tension, however, have as positive an influence as the discharges in determining the total condition, and consequently in deciding what the *psychosis* shall be to which the complex *neurosis* corresponds. All we know of submaximal nerve-irritations, and of the summation of apparently ineffective stimuli, tends to show that *no* changes in the brain are really physiologically ineffective, and that presumably none are bare of psychological result. But as the distribution of brain-tension shifts from one relative state of equilibrium to another, like the aurora borealis or the gyrations of a kaleidoscope, now rapid and now slow, is it likely that the brain's faithful psychic concomitant is heavier-footed than itself, that its rate of change is coarser-grained, that it cannot match each one of the organ's irradiations by a shifting inward iridescence of its own? But if it can do this, its inward iridescences must be infinite, for the brain-redistributions are in infinite variety. If so coarse a thing as a telephone-plate can be made to thrill for years and never reduplicate its inward condition, how much more must this be the case with the infinitely delicate brain?

As, in the senses, an impression feels very differently according to what has preceded it; as one colour succeeding another is modified by the contrast, silence sounds delicious after noise, and a note, when the scale is sung up, sounds unlike itself when the scale is sung down; as the presence of certain lines in a figure changes the apparent form of the other lines, and as in music the whole æsthetic effect comes from the manner in which one set of sounds alters our feeling of another; so, in thought, we must admit that those portions of the brain that have just been maximally excited retain a kind of soreness which is a condition of our present consciousness, a co-determinant of how and what we now shall feel.

I am sure that this concrete and total manner of regarding the mind's changes is the only true manner, difficult as it may be to carry it out in detail. Associationism and Herbartianism are only schematisms which, the moment they are literally taken, become mythologies, and had much better be dropped than retained.[1]

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[1] In an article on the "Association of Ideas" published in the *Popular Science Monthly* of New York for March, 1880, I have myself tried to reinterpret the various varieties of association as due to quantitative alterations in what is always an integral action of the brain.

Let me, by a few examples, bring the fact home for which I contend; let me show how a state of mind may be quite specific and at the same time quite inarticulate; let me exhibit some of the modifications that are probably due to nascent and waning excitements of the brain.

Suppose three successive persons say to us: "Wait!" "Hark!" "Look!" Our consciousness is thrown into three quite different attitudes of expectancy, although no definite object is before it in any one of the three cases. Counting out different actual bodily attitudes, and counting out the reverberating images of the three words, which are of course diverse, probably no one will deny the existence of a residual conscious affection, a sense of the direction from which an impression is about to come, although no positive impression is yet there. Meanwhile we have no names for the psychoses in question but the names hark, look, and wait.

Suppose we try to recall a forgotten name. The state of our consciousness is peculiar. There is a gap therein; but no mere gap. It is a gap that is intensely active. A sort of wraith of the name is in it, beckoning us in a given direction, making us at moments tingle with the sense of our closeness, and then letting us sink back without the longed-for term. If wrong names are proposed, this singularly definite gap acts immediately so as to negate them. They do not fit into its mould. And the gap of one word does not feel like the gap of another, all empty of content as both might seem necessarily to be when described as gaps. When I vainly try to recall the name of Spalding, my consciousness is far removed from what it is when I vainly try to recall the name of Bowles. Here some ingenious persons will say: "How *can* the two consciousnesses be different when the terms which might make them different are not there? All that is there, so long as the effort to recall is vain, is the bare effort itself. How should that differ in the two cases? You are making it seem to differ by prematurely filling it out with the different names, although these, by the hypothesis, have not yet come. Stick to the two efforts as they are, without naming them after facts not yet existent, and you'll be quite unable to designate any point in which they differ." Designate, truly enough. We can only designate the difference by borrowing the names of objects not yet in the mind. Which is to say that our psychological vocabulary is wholly inadequate to name the differences that exist, even such strong differences as these. But namelessness is compatible with existence. There are innumerable consciousnesses of emptiness, no one of which taken in itself has a name, but all different from each other. The ordinary way is to assume that they are all emptinesses of consciousness, and so the same state. But the feeling of an absence is *toto coelo* other than the absence of a feeling. It is an intense feeling. The rhythm of a lost word may be there without a sound to clothe it; or the evanescent sense of something which is the initial vowel or consonant may mock us fitfully, without growing more distinct. Every one must know the tantalising effect of the blank rhythm of some forgotten verse, restlessly dancing in one's mind, striving to be filled out with words.

Again, what is the strange difference between an experience tasted for the first time and the same experience recognised as familiar, as having been enjoyed before, though we cannot name it or say where or when? A tune, an odour, a flavour sometimes carry this inarticulate feeling of their familiarity so deep into our consciousness that we are fairly shaken by its mysterious emotional power. But strong and characteristic as this psychosis is—it probably is due to the submaximal excitement of wide-spreading associational brain-tracts—the only name we have for all its shadings is "sense of familiarity".

When we read such phrases as "naught but," "either one or the other," "*a* is *b*, but," "although it is, nevertheless," "it is an excluded middle, there is no *tertium quid*," and a host of other verbal skeletons of logical relation, is it true that there is nothing more in our minds than the words themselves as they pass? What then is the meaning of the words which we think we understand as we read? What makes that meaning different in one phrase from what it is in the other? "Who?" "What?" "When?" "Where?" Is the difference of felt meaning in these interrogatives nothing more than their difference of sound? And is it not (just like the difference of sound itself) known and understood in an affection of consciousness correlative to it, though so impalpable to direct examination? Is not the same true of such negatives as "no," "never," "not yet"?

The truth is that large tracts of human speech are nothing but signs of direction in thought, of which direction we nevertheless have an acutely discriminative sense, though no definite sensorial image plays any part in it whatsoever. Sensorial images are stable psychic facts; we can hold them still and look at them as long as we like. These bare images of logical movement on the contrary are psychic transitions, always on the wing, so to speak, and not to be glimpsed except in flight. Their function is to lead from one set of images to another. As they pass, we feel both the waxing and the waning images in a way altogether peculiar and a way quite different from the way of their full presence. If we try to hold fast the feeling of direction, the full presence comes and the feeling of direction is lost. The blank verbal scheme of the logical movement gives us the fleeting sense of the movement as we read it, quite as well as does a rational sentence awakening definite imaginations by its words.

What is that first instantaneous glimpse of some one's meaning which we have, when in vulgar phrase we say we "twig" it? Surely an altogether specific affection of our mind. And has the reader never asked himself what kind of a mental fact is his *intention of saying a thing* before he has said it? It is an entirely definite intention, distinct from all other intentions, an absolutely distinct state of consciousness therefore; and yet how much of it consists of definite sensorial images, either of words or of things? Hardly anything! Linger, and the words and things come into the mind; the anticipatory intention, the divination is there no more. But as the words that replace it arrive, it welcomes them successively and calls them right if they agree with it, it rejects them and calls them wrong if they do not. It has therefore a nature of its own of the most positive sort, and yet what can we say about it without using words that belong to the later mental facts that replace it? The *intention-to-say-so-and-so* is the only name it can receive. One may say that a good third of our psychic life consists in these rapid premonitory perspective views of schemes of thought not yet articulate. How comes it about that a man reading something aloud for the first time is able immediately to emphasise all his words aright, unless from the very first he have a sense of at least the form of the sentence yet to come, which sense is fused with his consciousness of the present word, and modifies its emphasis in his mind so as to make him give it the proper accent as he utters it? Emphasis of this kind is almost altogether a matter of grammatical construction. If we read "no more" we expect presently to come upon a "than"; if we read "however" at the outset of a sentence it is a "yet," a "still," or a "nevertheless," that we expect. A noun in a certain position demands a verb in a certain mood and number, in another position it expects a relative pronoun. Adjectives call for nouns, verbs for adverbs, &c., &c. And this foreboding of the coming grammatical scheme combined with each successive uttered word is so practically accurate, that a reader incapable of understanding four ideas of the book he is reading aloud can nevertheless read it with the most delicately modulated expression of intelligence.

Some will interpret these facts by calling them all cases in which certain images, by laws of association, awaken others so very rapidly that we think afterwards we felt the very *tendencies* of the nascent images to arise before they were actually there. For this school the only possible materials of consciousness are images of a perfectly definite nature. Tendencies exist, but they are facts for the outside psychologist rather than for the subject of the observation. The tendency is thus a *psychical* zero; only its *results* are felt.

Now what I contend for, and accumulate examples to show, is that "tendencies" are not only descriptions from without, but that they are among the *objects* of the stream, which is thus aware of them from within, and must be described as in very large measure constituted of *feelings of tendency*, often so vague that we are unable to name them at all. It is in short the re-instatement of the vague to its proper place in our mental life which I am so anxious to press on the reader's attention. Mr. Galton and Prof. Huxley have made one step in advance in exploding the ridiculous theory of Hume and Berkeley that we can have no images but of perfectly definite things. Mr. Spencer has made another in overthrowing the equally ridiculous notion that, whilst simple objective qualities are revealed to our knowledge in feelings, relations are not. But these reforms are not half sweeping and radical enough. What must be admitted is that the definite images of traditional psychology form but the very smallest part of our minds as they actually live. The traditional psychology talks like one who should say a river consists of nothing but pailsful, spoonsful, quartpotsful, barrelsful, and other moulded forms of water. Even were the pails and the pots all actually standing in the stream, still between them the free water would continue to flow. It is just this free water of consciousness that psychologists resolutely overlook. Every definite image in the mind is steeped and dyed in the free water that flows round it. With it goes the sense of its relations, near and remote, the dying echo of whence it came to us, the dawning sense of whither it is to lead. The significance, the value, of the image is all in this halo or penumbra, that surrounds and escorts it,—or rather that is fused into one with it and has become bone of its bone and flesh of its flesh; leaving it, it is true, an image of the same *thing* it was before, but making it an image of that thing newly taken and freshly understood.

What is that shadowy scheme of the "form" of an opera, play, or book, which remains in our mind and on which we pass judgment when the actual thing is done? What is our notion of a scientific or philosophical system? Great thinkers have vast premonitory glimpses of schemes of relation between terms, which hardly even as verbal images enter the mind, so rapid is the whole process. We all of us have this permanent consciousness of whither our thought is going. It is a feeling like any other, a feeling of what thoughts are next to arise, before they have arisen. This field of view of consciousness varies very much in extent, depending largely on the degree of mental freshness or fatigue. When very fresh, our minds carry an immense horizon with them. The present image shoots its perspective far before it, irradiating in advance the regions in which lie the thoughts as yet unborn. Under ordinary conditions the halo of felt relations is much more circumscribed. And in states of extreme brain-fag the horizon is narrowed almost to the passing word,—the associative machinery, however, providing for the next word turning up in orderly sequence, until at last the tired thinker is led to some kind of a conclusion. At certain moments he may find himself doubting whether his thoughts have not come to a full stop; but the vague sense of a *plus ultra* makes him ever struggle on towards a more definite expression of what it may be; whilst the slowness of his utterance shows how difficult, under such conditions, the labour of thinking must be.

In the light of such considerations as these, the old dispute between Nominalism and Conceptualism seems to receive the simplest of solutions. The Nominalists say that, when we use the word *man*, meaning *mankind*, there is in the mind nothing more than either a sound or a particular image, *plus* certain tendencies which those elements have to awaken an indefinite number of images of particular men, or of other images (verbal or not) which "make sense" with *mankind*, but not with any individual. These "tendencies" are, however, for them mere physical facts, and not modes of feeling the word as it is uttered. The Conceptualists, on the other hand, see perfectly well that at the very moment of uttering the word, or even before uttering it, we know whether it is to be taken in a universal or a particular sense; and they see that there is some actual present modification of the mind which is equivalent to an *understanding* of the sense. But they call this modification, or conceptual character of the word, an act of pure intelligence, ascribe it to a higher region, and deem it not only other than, but even opposite to, all "facts of feeling" whatsoever.

Now why may we not side with the Conceptualists in saying that the universal sense of the word does correspond to a mental fact of *some* kind, but at the same time, agreeing with the Nominalists that all mental facts are modifications of subjective sensibility, why may we not call that fact a "feeling"? *Man* meant for *mankind* is in short a different feeling from *man* as a mere noise, or from *man* meant for *that* man, to wit, John Smith alone. Not that the difference consists simply in the fact that, when taken universally, the word has one of Mr. Galton's "blended" images of man associated with it. Many persons have seemed to think that these blended, or as Prof. Huxley calls them, "generic," images, are equivalent to concepts. But, in itself, a blurred thing is just as particular as a sharp thing; and the generic character of either sharp image or blurred image depends on its being felt *with its representative function.* This function is the mysterious *plus*, the understood meaning. But it is nothing applied to the image from above, no pure act of reason inhabiting a supersensible and semi-supernatural plane. It can be diagrammatised as continuous with all the other segments of the subjective stream. It is just that staining, fringe or halo of obscurely felt relation to masses of other imagery about to come, but not yet distinctly in focus, which we have so abundantly set forth.

If the image come unfringed it reveals but a simple quality, thing, or event; if it come fringed it reveals something expressly taken universally or in a scheme of relations. The difference between thought and feeling thus reduces itself, in the last subjective analysis, to the presence or absence of "fringe". And this in turn reduces itself, with much probability, in the last physiological analysis, to the absence or presence of sub-excitements of an effective degree of strength in other convolutions of the brain than those whose discharges underlie the more definite nucleus, the substantive ingredient, of the thought,—in this instance, the word or image it may happen to arouse.[1]

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[1] The contrast is not, as the Platonists would have it, between certain subjective facts called images and sensations, and others called acts of relating intelligence; the former being blind perishing things, knowing not even their own existence as such, whilst the latter combine past and future, the north pole and the south, in the mysterious synthesis of their cognitive sweep. The contrast is really between two *aspects*, in which all mental

I wish that space were here afforded to show what, in most cases of rapid thinking, the fringe or halo is with which each successive image is enveloped. Often it cannot be more than a sense of the mutual affinity or belonging together of the successive images, and of their continuity with the main topic. This is the minimal perception of rational sequence, and can obtain between pure series of words, as well as between pictorial images, or between these and words. It gives us a lulling sense that we are "all right"; and when we have it, we let the image before us "pass" without demur. We feel that the topic is gradually being enriched, and that we are making towards the right conclusion. When we listen with relaxed attention, this

facts without exception may be taken; their structural aspect, as being subjective, and their functional aspect, as being cognitions. In the former aspect, the highest as well as the lowest is a feeling, a peculiarly tinged segment of the stream. This tingeing is its sensitive body, the *wie ihm zu Muthe ist*, the way it feels whilst passing. In the latter aspect, the lowest mental fact as well as the highest grasps some bit of universal truth as its content, even though that truth were as relationless a matter as a bare unlocalised and undated quality of pain. From the cognitive point of view, all mental facts are intellections. From the subjective point of view all are feelings. Once admit that the passing and evanescent are as real parts of the stream as the distinct and comparatively abiding; once allow that fringes and haloes, inarticulate perceptions, whereof the objects are as yet unnamed, mere nascencies of cognition, premonitions, awarenesses of direction, are thoughts *sui generis*, as much as articulate imaginings and propositions are; once restore, I say, the *vague* to its psychological rights, and the matter presents no further difficulty.

And then we see that the current opposition of Feeling to Knowledge is quite a false issue. If every feeling is at the same time a bit of knowledge, we ought no longer to talk of mental states differing by having more or less of the cognitive quality; they only differ in knowing more or less, in having much fact or little fact for their object. The feeling of a broad scheme of relations is a feeling that knows much; the feeling of a simple quality is a feeling that knows little. But the knowing itself, whether of much or of little, has the same essence, and is as good knowing in the one case as in the other. Concept and image, thus discriminated through their objects, are consubstantial in their inward nature, as modes of feeling. The one, as particular, will no longer be held to be a relatively base sort of an entity, to be taken for granted, whilst the other, as universal, is celebrated as a sort of standing miracle, to be adored but not explained. Both concept and image, *quâ* subjective, are singular and particular. Both are moments of the stream which come, and in an instant are no more. The word universality has no meaning as applied to their psychic body or structure, which is always finite. It only has a meaning when applied to their use, import, or reference to the kind of object they may reveal. The representation, as such, of the universal object is as particular as that of an object about which we know so little that the interjection "Ha!" is all it can evoke from us in the way of speech. Both should be weighed in the same scales, and have the same measure meted out to them, whether of worship or of contempt.

vague perception that all the words we hear belong to the same language and to the same special vocabulary in that language, and that the grammatical sequence is familiar, is practically equivalent to an admission that what we hear is sense. But if an unusual foreign word be introduced, if the grammar trip, or if a term from an incongruous vocabulary suddenly appear, such as "rat-trap" or "plumber's bill" in a philosophical discourse, the sentence detonates, as it were, we receive a shock from the incongruity, and the drowsy assent is gone. The feeling of rationality in these cases seems rather a negative than a positive thing, being the mere absence of shock, or sense of discord, between the terms of thought. Provided only the right substantive conclusion be reached, the train of images that lead us to it is comparatively indifferent. They may be purely verbal, they may be mixed verbal and pictorial, or they may not be verbal at all, as in the interesting account by Mr. Ballard of his deaf-mute philosophising. They may be what they please;—but if they only bring us out right, they are rational operations of thinking.[1]

Let us now pass to another introspective difficulty and source of fallacy, different from the one hitherto considered, but quite as baleful to psychology. I mean the *confusion between the psychologist's standpoint and the standpoint of the feeling* upon which he is supposed to be making his report.

The standpoint of the psychologist is external to that of the consciousness he is studying. Both itself and its own object are objects for him. They form a couple which he sees in relation, and compares together, and it follows from this that he alone can verify the cognitive character of any mental act, through his own assumed *true* knowledge of its object. Now he may err either by foisting his own knowledge of the object into the feeling, and representing the latter as aware of it just as he is. Or he may err by representing the feeling as if it felt *itself* to be what he knows it to be. Thus the psychologist may misrepresent the feeling in either of two ways, or in both.

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[1] Hegel's celebrated dictum that pure being is identical with pure nothing, results from his taking the words statically, or without the fringe they wear when in a context. Taken in isolation, they agree in the single point of awakening no sensorial images. But taken dynamically, or as significant,—as *thought*,—their fringes of relation, their affinities and repugnances, their function and meaning, are felt and understood to be absolutely opposed.

I may mention immediately that the doctrine of the post-Kantians, that all knowledge is also self-knowledge, seems to flow from this confusion. Empirically, of course, an awareness of self accompanies most of our thinking. But that it should be needed to *make* that thinking "objective" is quite another matter. "Green-after-red-and-other-than-it" is an absolutely complete object of thought, ideally considered, and needs no added element. The fallacy seems to arise from some such reflection as this, that since the feeling *is* what it feels itself to be, so it must feel itself to be what it *is*, namely, related to each of its objects. That the last *is* covers much more ground than the first, the philosopher here does not notice. The first *is* signifies only the feeling's inward quality; the last *is* covers all possible facts *about* the feeling, relational facts, which can only be known from outside points of view like that of the philosopher himself.[1]

But the great *Tummelplatz* of the confusion of the standpoints is the question of perception, and the whole problem of the manner in which the object is present to the mind in cognition. Distinguishing the standpoints explicitly leads us here to a very simple solution; and at the same time it clears up the subjective constitution of great tracts of our thinking, on which introspection hitherto has thrown but the most insufficient of lights.

The psychologist, studying this question, stands, as aforesaid, outside of the cognitive state-of-consciousness he is analysing, and compares it with its supposed object, which he thinks he *really* knows. Let us call the object as known to him "the reality". Then the question is: Is the reality directly present to the feeling under observation, or is it represented by a mental substitute? And, if the latter: Is the representative *like* the reality, a copy of it, or is it not?

A word about the back-bone of the human mind, the psychological principle of identity, will help us here. Logic and ontology both have their principles of identity, but the psychological principle is different from either, being a highly synthetic proposition, which affirms that different mental acts can contemplate, mean to contemplate, and know that they mean to contemplate, the same objective matter, quality, thing or truth. The notion of sameness-with-something-else is in fact one of the "fringes" in which a substantive mental kernel-of-content can appear enveloped. The same reality, as we call the kernel, can, then, by virtue of this principle, be thought in widely differing ways. Some of these ways are complete ways, the others are relatively incomplete ways. As a rule, the more substantive and sensational a way is, the more complete we usually suppose it to be.

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[1] The criticisms of the late Professor T. H. Green on empiricist writers seem to me to be so saturated with this confusion of the two standpoints, that their in many respects excellent teaching sadly loses its effectiveness.

When now, as psychologists, we undertake to describe any one of these ways of thinking, we call them all "thoughts *about* that reality," ticketing them with its substantive name. For instance, whether I say "I write with steel pens," having such a pen in my hand, and seeing it move over the paper; or whether I say "I write with them," in a conversation whose general topic is steel-pens; or whether I say "Quills are better"; or whether I simply *intend* to say any one of these things, but no image verbal or other arises, because my attention is suddenly diverted;—whichever of these facts occur, most people would describe my mental state as "thought about steel-pens". They would name a substantive kernel, and call that the "object" of each of the several thoughts. And the professed psychologists would agree with them. But the psychologists would then begin, as the laymen do not, to wonder how thought *can* be "about" an "object," which may be present to the thought neither in its own sensible shape, nor by its name, nor even by a pronoun, or any sort of an articulate representative whatever—for these seem to be the predicaments of the last three thoughts about the pen. And the psychologists would then after their several fashions spin ingenious theories as to the typical and normal mode of "presence" to the mind of the "object" of its thoughts; each one finding in some *one* of the cases observed a warrant for his own peculiar views.

The whole puzzle arises from the wrong mode of describing the several cases, by which the layman and the psychologist alike substitute the "reality," which is their own object, and which happens to be also the substantive kernel of the object of the first thought instanced, for the several objects of the other three thoughts. Clearing up our ideas of "the object" brings us out of the wood.

The object of any thought is its entire content or deliverance, neither more nor less. It is a vicious use of speech to take out a substantive kernel from its content and call that its object; and it is an equally vicious use of speech to add a substantive kernel not articulately included in its content, and to call that its object. Yet either one of these two sins we commit, whenever we content ourselves with saying that a given thought is simply "about" a certain topic, or that that topic is its "object". The object of my thought in the previous sentence, for example, is not simply "the sins we commit," nor "the sins we commit as psychologists," nor "the sins we commit as psychologists naming the objects of thoughts". Its object is nothing short of the entire sentence; and if we wish to speak of it substantively, we must make a substantive of it by writing it out in full with hyphens between all its words. Nothing short of this can possibly name its delicate idiosyncracy. And if we wish to *feel* that idiosyncracy we must reproduce the thought as it was uttered, with every word fringed and the whole sentence bathed in that original halo of obscure relations, which, like an horizon, then spread about its meaning.

In this "fringing" may be included a feeling of *continuity with the previous thoughts*, of there having been no breach of topic, but of the main interest and problem being unchanged. This would justify us psychologists in saying that the "topic" of the successive thoughts was still steel-pens, even although steel-pens as substantive images had long ceased to be present, and were not represented verbally even in pronominal form.

But can anyone pretend, in strict psychology, that the "topic" these incomplete thoughts are said to be "of" or "about," stands in the same relation to the thoughts themselves as that in which the "reality," steel-pens, stood to the complete thought we began with? Does it hold the same relation to them that the steel-pen holds to me, as I now take it in my hand and watch it write? Most assuredly not: the so-called topic is the *immediate object* of the complete thought, and of my thought. Each of the incomplete thoughts, whilst we say it is "of" that same topic, has all the time its *own* immediate object, which stands in the place the topic stands in in the complete thought and in mine. Exactly what that object is, is a question very hard to answer introspectively, when the thought is incomplete and transitive, and it has sped, and its light is out. We may safely say, however, that *continuity-with-the-complete-thought*, or with whatever previous thought first brought the topic on the *tapis*, enters *into* the object of each of the incomplete thoughts, so far as they can be truly said to be "about" that topic. They do not envelop the topic in a substantive manner, they are thrown *at* it merely. Their relation to it is that of a sense of the direction in which it lies. That directions unmarked by explicit and substantive termini are among the most frequently discriminated objects of our thinking, is a point that needs no proof. When a child, asked for the reason of something, says simply "*Because* . . . ," and is satisfied; or when a man, after hearing a long plan, says "No! we cannot do it *so*, . . . "; each of them draws a line of definite relation between some substantive thing and a term not realised in the thought, but hidden out of sight and towards which the thinker merely points or looks.

Let us continue to use the name "topic" to designate the substantive reality *towards* which each of the incomplete thoughts looks, and to some conclusion from or about which the whole procession of them will probably lead. We, as outside observers of the thoughts, knowing them in this their function of being connected with it, have a perfect right to say that they are "thoughts concerning this topic". But we are absolutely wrong if we say that their *object* is the topic, or that the topic is *present* to them, or that they are in any *direct* way "of" or "about" it. We then not only thrust into them *our* object, and the object of another thought with which they are only remotely connected; but we by the same act excuse ourselves from seeking—and if we chance to seek, prevent ourselves from finding—what their own immediate objects really are.

Every thought has its *own* object immediately present to it; and the only question in each particular case is as to *what* that object is. For the traditional psychologists, however, who say that many differing thoughts may have the same object, the great question is, *how* is that object present to them all, since they seem to resemble each other as little as they do. And the difficulties of answering that question are such that we find as clear-headed writers on the whole as Reid and Stewart throwing up the sponge. Even in sense-perception, they say, the reality is no more represented by our feeling than it is in our most remotely and indirectly referential thought. There is never the least resemblance or consanguinity between the thing we know and the feeling's content. The latter is merely a signal to awaken the *knowledge* of the thing, which knowledge is an act of pure intelligence, of which absolutely nothing can be said, and whose connexion with the signal is for us an arbitrary and unintelligible fact.

Now the truth is that in certain selected cases the signal *is* the reality. In complete sense-perception, for example, we normally believe that we see the latter face to face. Of what we have called the incomplete thoughts, however, this reality is only the "topic"; that is, a whole procession of them may occur without the reality's features being once directly present therein; but yet be a procession that takes note of its existence after a fashion, and is aware of itself *as* a procession leading to or from it as a terminus.

That there is a semblance of paradox here cannot be denied. Grant the procession to know its own existence as a procession; still how can it know itself as a procession to or from *that* reality,—or even in the direction of that reality,—without also knowing that reality itself immediately and face to face? But this apparent paradox comes from the confusion of the incomplete thought's standpoint with our own. We think the reality must be known in the procession as it is known to us, when—naming the procession —we call it a procession to or from that reality,—also explicitly naming and imagining the latter too. *We* cannot *name* the topic without the reality becoming a direct present object to *us*. But the procession can and does feel its topic in an entirely different way. To substitute our way for this way is a complete falsification of the data into which, as psychologists, we are supposed to inquire. What the actual way is, is excessively difficult to make out, on account of the elusive character of those transitive and relational elements of subjectivity on which we commented at the outset of our essay, and of which the procession is mainly composed. Considering our feeling of a tune may make the matter a little clearer. A tune is a processional feeling, in which the idea of the whole is present to each note, so far as to tinge or "fringe" that note differently from the way in which it finds itself tinged or fringed in any other tune. Now the "topic" is to each incomplete thought in the procession what the "tune" is to each note. *We* have to name the topic and the tune explicitly whenever we speak of them; but as we do not pretend that each note in the tune names and hums the entire tune on its own account, at the same time that it hears itself; so we ought not to pretend that each thought in the procession names and knows the topic of the procession in the same articulate and explicit way that we do, when we try to define just which procession it is.

What *sort* of a feeling each thought in the procession has of which procession it is, is as much a mystery for us to-day as what sort of a sense each note has of the tune it is in. These are the problems for the introspection of the future. I have said enough to show, I hope, their difficulty, and some of the causes on which that difficulty depends,—the main one being that our thought is a teleological organism, of which large tracts exist only for the attainment of others; and that our perception of these others, which were called its substantive parts, tends to spread itself everywhere in our reflective memory and obscure and replace the perception of the more evanescent parts that intervened. I hope I have made the reader feel how crude a thing that is which even our best text-books seek to pass off as "analysis of the human mind," and how deeply our current opinions on the subject demand revision.[1]

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[1] One word on my attitude towards the Ego may avert misconception. All I have urged against it in this article, is against it in its alleged exclusive capacity of "relating" agent. I have said there is no need of an agent to relate together what never was separate, and that it is an unnecessary hypothesis for explaining *cognition.* That feelings can be "for" each other when they do not belong to the same Ego, is proved whenever one person knows what another person thinks. That their being "for" each other when they do belong to the same Ego, is not *a consequence* of such belonging, —but may be more simply formulated by saying that each segment of the stream has its objects, and that the earlier segments become objects for the later,—is what I have sought to show. If this "solidarity" of the stream of feelings is all that is meant by the Ego,—if the Ego is merely a name for that fact,—well and good,—we seem agreed! For myself, however, there are certain material peculiarities about the way in which segments of the stream are *for* each other when they belong to the *same* Ego, that call for a deeper study of the question, and rather lead us to reserve the word Ego until they are quite cleared up. What is the difference between *your* feeling cognised by me, and a feeling expressly cognised by me as *mine?* A difference of intimacy, of warmth, of continuity, similar to the difference between a sense-perception and something merely imagined—which seems to point to a special *content* in each several stream of consciousness, for which Ego is perhaps the best specific name.

II.—LIFE AND MECHANISM.[1]

By J. S. HALDANE.

IT is a proposition very generally accepted by physiologists, that all organic processes could, had we means sufficiently delicate to investigate them, be reduced to series of causes and effects; or, which comes to much the same, that all that ultimate analysis can reveal in these processes, is matter acting as a 'vehicle' of energy. The present article will be devoted to an examination of this proposition in the light of biological facts, and to an endeavour to show that, however great a relative value it may have, it is in fundamental respects inconsistent with these facts.

I shall assume at starting that the proposition just referred to is true, and, as a consequence, use the language of physical science in referring to biological phenomena. I shall then proceed to show that the consistent application to these phenomena of physical conceptions leads to difficulties from which the only escape lies in substituting conceptions and language entirely different, and whose nature will appear in the course of the discussion.[2]

For physical science a steam-engine is an arrangement of matter into which energy passes from surrounding objects, and out of which, in a different form, the same energy is returned. It will therefore serve the purposes of our discussion to compare a steam-engine so conceived with a living organism. Energy enters the organism in the form of the potential energy which is present in a chemically unstable mixture of oxygen and various forms of food. Similarly the potential energy of an unstable mixture of oxygen and coal enters a steam-engine. From both the steam-engine and the organism this same energy is given off again in the form of heat and mechanical motion. So far the analogy between the steam-engine and the organism is complete.

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[1] The greater part of this article is based on a paper read before the Edinburgh Royal Medical Society, March 9, 1883.

[2] In reviewing *Essays in Philosophical Criticism* (*Nature*, Aug. 23, 1883), Mr. Romanes objects to discarding the conception of cause and effect as applied to the phenomena of life. It is no doubt true that physiology, in so far as it is an abstract science, ought not to regard life under any other conception. In the sequel, however, it will be shewn that there is an absolute necessity for discarding the conception of cause and effect if we are to attain to an idea of the nature of life which is not both abstract and self-contradictory.

But let us carry our inquiry a little further. The energy which leaves the machine is dissipated on the surroundings in a manner which, so far as our conception of the machine is concerned, has no reference to the future maintenance of its mechanism in action. When the fuel is finished, the machine cannot replace it, but simply runs down. If, now, we turn to the organism, we find that the energy which leaves it is by no means dissipated at random on the surroundings. On the contrary it is a characteristic fact that a part at least of that energy is so expended as directly or indirectly to bring about the maintenance of the organism in activity. The surroundings, in fact, are so acted on as to be caused to direct to the organism a supply of potential energy sufficient to make up for what has been spent. A man, for instance, will always direct his labour into some productive channel. Thus in agriculture his labour is expended in so acting on the land as to cause it to yield to him various forms of food. By producing clothing and erecting shelter for himself he in a less direct manner causes his surroundings to conduce towards maintaining his body in activity. Similar facts may be observed in the case of any of the lower organisms, and are characteristic of everything living.

Here, then, we have reached something in which an organism differs from an ordinary machine. There is nothing in all this, however, to lead us to suppose that organisms are not machines; though it is necessary to assume that they are so constructed as automatically to supply themselves with food and perform other actions necessary to their being kept in motion. It is, for instance, quite easy to suppose that the Paramœcium is such a machine. The Paramœcium, which is one of the Infusoria, has a ciliated channel passing a short way into its interior. The cilia move in such a way as to direct a current of water, and whatever it may contain, into and out of this gullet. Nutritive particles which are in this way brought within reach are seized upon and used as food. It is quite possible, surely, to imagine a machine constructed on the model of the Paramœcium, and renewing its supply of fuel in the same way as the Paramœcium renews its supply of food. And in the case of higher organisms it seems reasonable to suppose that the difference is only a difference in the degree of complication and delicacy of the mechanisms involved.

We may, for instance, compare the method by which the Paramœcium procures its food with that employed by a frog. The frog lives to a large extent on flies. These it catches by jumping at them and at the same time darting out its tongue. There appears to be every reason to suppose that in the case of the frog we have to deal with a mechanism, just as in the case of the Paramœcium; though in the frog this mechanism must be assumed to be much more delicate and complicated. The step from the frog to man is scarcely so great as that from the Paramœcium to the frog. So far, then, as the facts have been examined, they seem entirely consistent with the hypothesis that the organism is only a machine so peculiarly constructed as to be capable of keeping itself in action automatically.

But there is another point of difference between an organism and an ordinary machine. This lies in the power which the organism possesses of adapting its actions to unusual circumstances. What I mean is well illustrated by the experiments which Darwin made with a view to testing the intelligence of earthworms.

Earthworms are in the habit of stopping up the mouths of their burrows with leaves, leaf-stalks, or other convenient materials. It is evident that some leaves can be most conveniently dragged into a burrow by their tip, while in the case of others of a different shape it will be more convenient to make use of some other part, as the stalk. Consequently, in laying hold of one part rather than another, the animal may display more or less intelligence. In order to exclude the hypothesis that a special inherited instinct determines the worms to select the most convenient part of each special kind of leaf, Darwin tested them with leaves of foreign trees, and triangles of paper. At the end of the account of his observations he says (*Vegetable Mould*, &c., p. 98):—

> "To sum up, as chance does not determine the manner in which objects are drawn into the burrows, and as the existence of specialised instincts for each particular case cannot be admitted, the first and most natural supposition is that worms try all methods until they at last succeed; but many appearances are opposed to such a supposition. One alternative alone is left, namely that worms, although standing low in the scale of organisation, possess some degree of intelligence. This will strike every one as improbable; but it may be doubted whether we know enough about the nervous system of the lower animals to justify our natural distrust of such a conclusion. With respect to the small size of the cerebral ganglia, we should remember what a mass of inherited knowledge, with some power of adapting means to an end, is crowded into the minute brain of a worker-ant."

In these experiments the worms display intelligence in the fact that they do not mechanically employ one constant means in dragging objects into their burrows, but tend to use just the particular means suited to the particular circumstances of each case. That is to say, the intermediate steps in the process are in each particular case determined with reference to the final result. Hence we cannot simply say that the result is determined by, or is the effect of, the process, for it appears to be just as true that the process is determined by the result. Now this being so, it appears to me that the analogy between the nervous system and a machine can no longer by any possibility be held to. The action of a machine is determined from behind. That is to say, every one of its movements can be traced back to a cause antecedent in time, and in this way explained. But this is not true of the movements which we have been considering in the case of the earthworm; for the apparent cause appears to be as much effect as cause of the apparent effect. I shall, however, return to this matter presently.

Such behaviour as that of the earthworm in these experiments is only one example of a kind of behaviour which may be observed in the case of other organisms. Since the word 'intelligent' carries with it a reference to consciousness, I shall call this kind of behaviour 'purposive' rather than 'intelligent'.

But it is not only where the nervous system is concerned that purposive behaviour may be observed; for such behaviour is evident enough in the case of other tissues. Attention has been drawn elsewhere[1] to the significance of what occurs in the healing of wounds, especially among the lower animals. And it was pointed out that in the case of, say, the reproduction, after amputation, of the limb of a newt, it is not possible to explain on mechanical principles the behaviour of the cells which are concerned in the process. As the phenomena referred to may be passed over without their significance being realised, it may be well to indicate more particularly in what respects they are significant.

Let us suppose that the limb is amputated half way up the thigh: the cells near the surface of the stump work together by dividing and developing in various ways, so as to reproduce the limb. Supposing now that the line of amputation is oblique or irregular, this does not affect the result. The cells concerned in the process allow for the irregularity. If, for instance, two-thirds of the extensors of the knee, half of the thigh bone, and a third of the hamstring muscles, are amputated, the missing part of each of these structures is nevertheless reproduced in its proper proportion. Now were the behaviour of the cells determined by anything of the nature of mechanisms within them, we should find that they did their work in the same way as machines do their work—that is to say, blindly. We should, in fact, find that, when placed in circumstances not previously met with by them, and therefore not provided for, they would fail to act so as to attain the end which conduces, under these circumstances, to maintaining the organism in action. This, however, is just what these cells do not do; since in whatever way the injury to the limb may be varied, they adapt their behaviour to the circumstances of the case, and attain the end of reproducing the limb. In the process of healing, then, we meet with facts similar to those already discussed in the case of the earthworm.

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[1] *Essays in Philosophical Criticism*, p. 54.

The two cases which I have taken are of course only isolated examples of phenomena which prevail more or less throughout the whole organic world, and to which phenomena as a whole the above analysis may be made to apply. That analysis enables us to conclude that the purposive behaviour displayed in the attainment by organisms of such ends as the reproduction of a newt's limb, or the stopping up of an earthworm's burrow, cannot be due to the mere action of neuro-muscular or intracellular mechanisms.

This conclusion does not, however, carry with it an assertion of the existence within the organism of phenomena altogether different from those outside of it. It is quite intelligible that a stone falls back again to the earth, in whatever direction it may have been propelled in the air. The attraction of the earth overcomes the force which propels the stone away, in whatever direction that force may be. The propelling force may be varied in direction to any extent, yet the stone reaches the earth with certainty. Now if we do not make the unmeaning assumption that an intelligence which is supernatural influences, nevertheless, the physical world, it is necessary to suppose that, in the case of the class of phenomena which we have been considering, there must be some explanation similar to that of the behaviour of the stone. When an earthworm stops up its hole in spite of such disturbing influences as were introduced by Darwin, its behaviour is analogous to that of a stone in reaching the ground in whatever direction it may have been originally propelled. And in order to render the movements of the worm intelligible we must suppose it to be in some way influenced by a force of attraction. But it is at least clear that no *direct* force of this sort guides the worm in its movements relatively to the burrow and the materials used; and the like is true of other instances of purposive action. This, however, does not exclude the existence of a connecting force which acts in an indirect and roundabout manner; and the only escape from the difficulty lies in assuming that there is such a force. Let us consider more particularly how this force must act.

When an earthworm fills up its burrow it is not performing an action unconnected with other events in its life. The filling up of the burrow is determined with reference to further ends, in the same sense as that in which the seizing of the apical portion of one of Darwin's triangles is determined with reference to the end of filling up the burrow. And if this reasoning be followed out, it leads to the conclusion that all the actions of the worm can be regarded as determined more or less directly with reference to one comprehensive end—the end, namely, of so influencing the surroundings as to cause them to direct to the animal a supply of energy sufficient to make up for what has been spent by it.

From this it follows that the force whose existence we found it necessary to assume for the explanation of the movements of the worm in filling up its burrow—that this force is subordinate to a force which connects generally the organism and its surroundings. Since the hypothesis of mechanisms within the organism fails us, it is only by assuming the existence of such a force that we can explain the determination with reference to the one comprehensive end mentioned above of all the actions of the animal. This force must be conceived as acting from the surroundings in all sorts of indirect ways on the parts of the organism, so as to cause them to act in their turn on the surroundings. In the same way a force is thought of as acting from the earth so as to cause a stone thrown into the air sooner or later to act on the earth by striking against it. Not only, however, do surroundings and organism successively act and react on one another; but the organism, as we have seen, reacts on the surroundings in a certain particular manner—in such a manner, namely, as to bring it about that the surroundings act again on the organism in transferring to it energy contained in food. In other words, the surroundings determine the organism to react upon them in a certain manner, but this manner of reaction is determined with reference to the organism itself. Now what is implied in saying that this manner of reaction is determined with reference to the organism itself, is that in being made to react on the surroundings the organism is determined by its own influence acting through the surroundings. The surroundings in acting on the organism are therefore at the same time acted on by it. The organism is thus no more determined by the surroundings than it at the same time determines them. The two stand to one another, not in the relation of cause and effect, but in that of reciprocity.

What is true of the organism and its surroundings looked at as wholes in relation to one another, applies of course equally when the organism is looked at as made up of a number of separate parts. These parts stand to one another and to the surroundings, not in the relation of cause and effect, but in that of reciprocity. The parts of an organism and its surroundings thus form a system, any one of the parts of which constantly acts on the rest, but only does so, *quâ* part of the system, in so far as they at the same time act on it.

This general conception of the nature of life does not in any way postulate the existence of a vital force, the action of which is unknown to physiology. All that is meant is that when the processes which physiology investigates, one by one, are looked at as a whole, in their relation to one another, these processes must be regarded under the general conception, or category, of reciprocity, rather than under that of cause and effect. It is therefore irrelevant to point to isolated physiological phenomena, and say that they, at any rate, are nothing more than series of causes and effects. They participate in the life of an organism; and when they are looked at as doing so they must be brought under the category of reciprocity. To illustrate this point let us take the case of the transmission, from the cells of one of the motor areas of the cerebral cortex, of nervous impulses to a group of muscles, and the consequent movement of the corresponding limb. If the phenomena in question be looked at by themselves, they present nothing more than a series of causes and effects. But when these same phenomena are looked at in relation to the whole life of the animal, it is altogether different. For the movement of the limb has some purpose or other in relation to the nutrition of the animal; and this implies, as we have seen above, the general conception of reciprocity.

It might be said that this conception of reciprocity must, after all, be ultimately subordinated to that of mechanism. For the potential energy contained in the food of an organism has its source in the heat of the sun. And the energy expended by the organisms on its surroundings is all finally dissipated. Life can thus at the most be nothing more than an eddy in a stream of energy passing from the sun to be dissipated in surrounding space.

Now this objection derives its apparent force from a tacit assumption, of the nature of which it is well to be clearly aware. We have already seen why a living organism and its surroundings must be regarded as a system of parts reciprocally determining one another. But when the sun is treated as a source of energy and as such considered in its relation to life, it is really taken for granted at the outset that life is a mechanical process. For if one phenomenon is brought under a certain category, all other phenomena are potentially brought under the same category. It is not possible without contradiction to regard phenomena under two categories simultaneously.[1] Therefore the form of the above objection precludes the possibility of an answer to it. All that can be said with regard to it is that in relation to the essential characteristics of life, the conception of the sun as a source of energy may be shown to be self-contradictory, in the same way as was done with the conception of the organism as a machine. The range of application of a category cannot be limited in space; so that in bringing the phenomena of life under the category of reciprocity we do not limit the application of this category to a certain portion of space, leaving an outside region in which the category of cause and effect holds undisputed sway. Hence we may regard the sun as participating, inasmuch as it is a part of the surroundings, *in* the system of life of an organism, but not as acting *on* that system from without.

It follows from this that the surroundings of an organism are to be looked on, not merely as objects in ambient space which may act on, or else be acted on by, the organism, but as these objects in so far as they participate with other objects in forming with the organism a system whose parts reciprocally determine one another. The mode of life of organisms on the earth, for instance, is suited to the present condition of the solar system, and so indirectly to conditions beyond. But it is not enough simply to say that these conditions modify the life of terrestrial organisms, since that life actively adapts itself to them. The relation is that of reciprocal action: not merely that of cause and effect.

So long as it is allowed to appear that, apart from a consideration of life, the category of cause and effect has an absolute validity of its own, the foregoing reasoning will seem incomplete in some sense. For the world as it is for physical science—the world of causes and effects—seems to have no definite relation to the same world regarded, in relation to life, under the category of reciprocity. The task undertaken in this article is not, however, to inquire how far a world of causes and effects is real. All that has been undertaken is to show that the ordinary conceptions of physical science are insufficient when applied to the phenomena of life, and that other conceptions must be substituted.

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[1] This point is worked out in *Essays in Philosophical Criticism*, ii.

The result of our inquiry up to this point has been to show that biological phenomena are to be interpreted under the category of reciprocity rather than under that of cause and effect. But we shall see that the category of reciprocity has after all only a relative appropriateness, there being essential characteristics of life which it does not express.

In the case of a system whose parts reciprocally determine one another, each part, though determined by and determining the rest of the system, has yet a certain independence of its own. The fact of its taking part in the system is not essential to its own existence, since it has numerous properties which belong to it apart from its relation to the system. Now in the case of the system of life the parts are not thus independent. They are determined, not only as regards their reciprocal action on one another, but also as regards what is inherent in the parts themselves of a system whose parts reciprocally determine one another. Size, shape, consistence, and other properties which we think of as inherent in a thing itself, as well as what relates to its determination of and by other things, are determined, in the case of what is concerned in the life of an organism, with reference to that life as a whole. For instance, it is not enough to say that the action of a limb at the same time determines and is determined by the rest of the organism and by its surroundings. For the size of the limb, its shape, structure, and other properties such as ordinarily appear to us to inhere in a thing itself, apart from its relation to other things, are determined with reference to the function which the limb performs.

Let us consider again the phenomena which may be observed in connexion with the amputation of one of the limbs of a newt. From the previous discussion we gathered that the characteristic behaviour of the cells concerned in the reproduction of the limb must remain unintelligible unless the life of the animal be brought under the general conception of reciprocity. But it is not only the movements of the cells relatively to one another that have to be explained, but also the assumption by them of properties which inhere in themselves, such as certain sizes, shapes, and consistencies. For the cells which take part in the process assume in each case a certain size, consistence, and shape suited to the functions which they severally have to perform. Certain cells, for instance, assume the form, consistence, size, and colour suited to the function which the contractile pigment-cells beneath the epidermis have to perform, while others assume the properties required for muscle-cells. Now here the conception of reciprocity fails us. For in a system of parts which reciprocally determine one another, each part, as we have seen, is independent as concerns its own individual properties. We regard the planets in the solar system, for example, as reciprocally acting on one another, but yet as each independent of the system so far as concerns such properties as shape and consistence. In the case, however, of life, the fact of the determination in a certain way of the individual properties of the parts has to be explained, as well as the behaviour of the parts relatively to one another.

It is common to account for the fact that the properties of any part of an organism are adapted to the function which they perform, by supposing that they have been made so by forces acting from outside of the life of the organism. These forces are found, either in a God existing independently of the physical universe, or in the environment of organisms. Thus it is argued that the parts of organisms are constantly undergoing slight modifications under the influence of the environment; that some of these modifications give the organism which has undergone them an extra chance of survival; and that, as offspring resembles parent, the advantageous modifications must necessarily tend to be transmitted and preserved in a stock, which will prevail over other stocks. This account of the matter implies, then, that the presence of design is, in ultimate analysis, accidental to the parts, in the same sense as that in which the form of a marble bust is accidental to the marble.

But how can such an explanation be reconciled with the fact, for instance, that the developing cells of the new limb of a newt assume the properties suited to their future function, in whatever way the method of amputation may be varied? It is not only the behaviour, under these circumstances, of the cells relatively to one another that has to be accounted for; but also the fact that as to its individual properties each cell constitutes itself in a certain manner according to its particular future function, and does so, not in a blind mechanical manner, but allowing for complicated disturbing conditions. This latter fact becomes altogether unintelligible if a cell be looked upon as something whose properties have been passively received from without, as the parts of a machine have received their shape, &c. For this reason, among others, Häckel's ingenious theory of the nature of reproduction seems to me to be quite untenable.

To get over the difficulty we must conclude that the determination of the parts as members of a system extends, not only to their behaviour relatively to one another, but also to properties in them which they seemed to possess independently. For only in this way can we account for the circumstance that the 'design' which is seen in the parts is not accidentally present in them, apart from the fact of their determination as members of the system, but is dependent on this fact. There is, then, not merely a reciprocal determination of one another by the parts as subordinate independent wholes; but this reciprocal determination extends right through the parts. That is to say, what appeared to belong to the parts independently of their relation to the whole, for instance their size, shape, and structure, is really only the manifestation in the parts of the influence of the whole.[1]

The nature of this conception of the whole determining the parts through and through, may be made more clear if we consider its application in a much less complicated case. The general contour, at any moment, of that part of the earth's surface which is covered by the sea is due, not merely to the mutual attraction between all parts of the earth, but also, as shown by the tides, to the mutual attraction between the earth and other members of the solar system. We may therefore consider that the contour of the sea is a manifestation in the earth of the influence of the solar system regarded as a whole. There is thus in the case even of the solar system something more than a reciprocal determination by the parts of one another as subordinate independent wholes. For, so far as our illustration is concerned, the influence of the whole manifests itself right through one of these subordinate wholes, and determines its shape, which is one of the properties as to which the parts of a whole of reciprocity are independent. The general conception of reciprocity must here give way to that of the whole determining the parts through and through, so that their essential independence of the whole is lost.

Here again it may be well to state that in the application to biological phenomena of this idea of the whole determining the parts through and through, the existence of no mysterious force is postulated. All that is done is to take a more concrete and comprehensive view of forces with which physiology familiarly deals, the previous view having turned out to be narrow and abstract.

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[1] The word 'whole' is used here, not in the sense of a spatial whole, but with a significance which the context sufficiently determines.

In order to get a clearer idea of the conception which we have now reached of the nature of life, we may compare this new conception with that of reciprocity. The parts of a whole of reciprocity are thought of as having a certain independence of their own, manifested in properties which they possess individually, apart from their relation to the whole. And this independence is an essential part of the conception. For it is not merely that the parts seem independent when we leave out of account the whole; but it is of the essence of a whole of reciprocity that its parts are at the same time dependent on it and independent of it. In so far as the parts participate in the system formed by the whole, the influence of the whole in them is not the influence of something foreign to themselves. They are not determined by another, as in causal determination, but by themselves through another. In as far, however, as regards that in the parts with respect to which they are essentially independent, in so far is the influence of the whole in them a foreign determining influence. It is thus true of a whole of reciprocity that its parts are at the same time free and determined by another. In the case, however, of the conception of a whole which determines the parts through and through it is different. For, so far as concerns what is essential to the conception, there is nothing in the parts that is not a manifestation of the whole. The shape, consistence, size, and other properties in which the independence of the parts previously seemed to show itself, are now only manifestations of the whole. In all that the parts do and all that they are they only show forth the whole. It follows from this that if we speak of them as determined by the whole, we use the word 'determined' in a sense altogether different from its ordinary sense. For, since the parts are what they are, only as taking part in the whole, there can clearly be nothing foreign to them in their determination. In this apparent determination they are only manifesting what they are in themselves.

I shall devote the rest of this article to showing how this conception may be brought to bear on specific biological questions. Some apparent difficulties which suggest themselves in connexion with these questions will at the same time be considered.

In the phenomena of reflex action those who uphold the belief that the organism is at bottom only a complicated piece of mechanism find what appears to afford to that belief a reasonable basis. If the finger be lightly and quickly drawn across the sole of the foot it will be noticed that the foot gives an involuntary jerk. In cases where from injury or other morbid conditions the physiological communication between the brain and the lower part of the spinal cord is severed, the jerking of the foot can still be elicited, and indeed is now exaggerated. It is therefore clear that the jerking is not brought about through the medium of the higher nerve-centres in the brain, but concerns only those of the spinal cord. As the jerk follows the stimulus to the skin with perfect regularity it is evident that there must be a causal connexion between the two phenomena, and it is not difficult to follow out that connexion through the afferent nerves, certain groups of ganglion-cells in the cord, and the motor nerves, to the muscles which move the foot. So far as these facts go they entirely corroborate the belief that the organism is a machine. And it is a plausible deduction from them that, since the cells of the higher nerve-centres are presumably in all fundamental respects similar to those of the lower centres, the actions in which they are concerned are in reality only very complicated reflex actions, the element of consciousness being sometimes added, but in no way altering the matter from a physical point of view.

Of course it is clear that the deliberately purposive actions in which the higher nerve-centres are concerned are of the same sort as those which we have already considered in the case of the earthworm. The restoration of function which, in greater or less degree, follows cerebral lesions in man is also similar in kind to the reproduction of a limb in the case of the newt. Accordingly the reasoning of the previous part of this article may be applied to show that in the case of the higher nerve-centres in man there is something more than mechanical action. But if the matter is left there, and it be at the same time admitted that reflex action is purely mechanical in itself, the conclusion follows that the ganglion-cells of a lower centre are altogether different from those of a higher one, and manifest in themselves the life of the organism in a far less intimate manner. Such a conclusion, however, strikes one at once as being altogether contrary to biological analogy; and a further consideration of the facts will show that it is unnecessary. The fact that a soldier instinctively performs a certain action on receiving the word of command from his superior officer, does not imply that he is a machine. His obedience may have the appearance of being more or less mechanical, but the fact that he originally learned to obey, and was not made to do so by influences acting on him merely from without, shows that he is not in reality a machine. For in the process of learning he showed that his actions were really purposive; and therefore it is a warrantable conclusion that his apparently mechanical obedience is at bottom a purposive obedience. Now if, in the case of the ganglion-cells concerned in reflex action, we find similar evidence of their behaviour being originally purposive, we shall similarly be warranted in concluding that reflex action is at bottom purposive and not mechanical. It will be sufficient to compare in respect of their reflex actions a mammal with one of the lower vertebrates, such as a frog; as it may safely be inferred from analogy that reflex action in a frog corresponds roughly with an early stage in the development of reflex action in a mammal.

If the spinal cord of a frog be severed from the brain, and a stimulating substance be applied to the skin of one of the hind limbs, the leg is moved in such a way as to make it evident that an attempt is being made to get rid of the source of irritation. And if the leg be held, the other leg is made use of to remove the irritating substance. The animal is also capable of performing many other actions which appear to be to a certain extent really purposive, and scarcely capable of being explained by the hypothesis of a prearranged mechanism in the cord.

In the case, now, of a mammal whose cord has been similarly severed from the brain, what is observed is different. Complicated and highly co-ordinated reflex actions are, it is true, performed. But there is not the same power of adapting these movement to varied circumstances. In other words, the behaviour of the animal corresponds much more closely to what one would expect if the centres in the cord were only so many mechanisms, each previously arranged so as to act in a certain definite way.

Now if it were true that reflex action, looked on as a purely mechanical phenomenon, is the type of the behaviour of the nervous system generally, one would expect to find this type manifested, not less, but more clearly in the case of the lower animals. But the opposite of this is found to be the case. Therefore the mechanical interpretation given to the facts of reflex action can be only superficially correct. The ganglion-cells of the cord can no more be regarded as mechanisms than can the ganglion-cells of the brain. As regards the doctrine often taught, that reflex action is the fundamental type to which the behaviour of the nervous system generally may be referred, physiologists would seem to have been led astray by an erroneous *a priori* conception.

What is true of the ganglion-cells of the cord is true of the cells in parts of the body other than the nervous system.

A cell may superficially resemble a mechanism in its behaviour. But that it is not really a mechanism may be deduced from a consideration of the behaviour of the cells which morphologically correspond to it in the lower animals. The lower we go in the scale of multicellular animals, the more clear does it become that the cells are fundamentally alike in manifesting purposive behaviour. In the higher animals, however, differentiation of function among the cells has gone so far that they have much more the superficial appearance of being mechanisms, with the prominent exception of the ganglion-cells of the higher nervous centres.

This interpretation of the facts is strengthened by a consideration of what may be observed in connexion with pathological conditions of the human body. When any part of a machine is injured or destroyed, there is no tendency to its spontaneous repair. If the injury is repaired, this is only brought about by interference from without. But in the case of injury of any part of the human body there is a manifest tendency to restoration of the function of the injured part, and this quite apart from interferences from without. Sometimes this restoration of function is brought about by means of the reproduction of tissue that has been destroyed, as, for instance, occurs when the shaft of a long bone that has been destroyed by inflammation is reproduced again entire. More frequently, however, this reproduction is due to neighbouring parts modifying themselves so as to be capable of carrying on the function of the part that is lost. As a good instance of this, may be taken a case of locomotor ataxy recorded by Professor Schultze.[1] In this disease, which is very rarely recovered from and almost always ends fatally sooner or later, there occurs progressive destruction of the fibres of the posterior columns of the spinal cord. The symptoms are very marked, as would be expected from the fact of such an important part of the body being affected. Professor Schultze's patient presented the fully developed symptoms of the disease; but, contrary to the usual rule, recovered, there being hardly a trace of the disease left. He died some years later from the effects of an accident. When the spinal cord was examined *post mortem*, the posterior columns in the lower part of the cord were found to be destroyed in the manner characteristic of the disease. The process of wasting had doubtless stopped at the time when the symptoms of the disease began to disappear; and other parts of the cord had thus been given time to modify themselves in such a way as to reproduce the function of the lost part.

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[1] *Archiv für Physiologie.*, xii., s. 232.

But it is not necessary to go out of the way to find instances which, it seems reasonable to suppose, are analogous. When, from valvular disease or other causes, increased work is required from the heart, it becomes hypertrophied. Similar hypertrophy in other muscular organs, and in voluntary muscles, occurs under similar circumstances. When one kidney is destroyed the other becomes hypertrophied and does double duty. On the other hand tissues which from any cause have become useless tend to atrophy, as may be seen in the case of muscles which are not used, the collar-bone after amputation of the arm on the same side, or the jaw-bone after the teeth have been lost. The restoration to their ordinary condition of organs whose structure has been profoundly altered by inflammation is almost as remarkable a phenomenon as any of those just mentioned. The more one considers such phenomena as these, even apart from other biological facts, the more does one feel the difficulty, if not impossibility, of putting on them any different interpretation from that which was put on the reproduction of the limb in the newt. But when the behaviour of the tissues generally in the lower animals, and that of the higher nervous centres in man, are also considered, it appears to me that there can scarcely remain any further doubt on the matter.

Clear conceptions as regards this matter would seem to be of great importance in medicine. As has been seen already, the apparent action on an organism of one of its parts is just as much the action of the organism on the part; and part and organism, as regards both what they are in themselves, and their apparent action and reaction on one another, only manifest in themselves the life of the organism regarded as a whole. In like manner a remedy cures diseases only in so far as its physical or physiological action is taken up into the life of the organism, so that that life becomes manifested in it. It is a common source of misconception that in the process of cure the remedy is regarded merely as a cause, producing a certain measurable effect in the diseased organism. To this source may be traced the fact that with the advance of pathological anatomy there grew up so much scepticism as regards therapeutics. For it is clearly impossible to replace artificially the exquisitely delicate tissues which are destroyed or injured by disease. But experience shows that remedies actually do most materially assist in the process of restoration of the function of a part of the body that has been injured or destroyed. For instance, when a valve of the heart has been injured by inflammation, and the circulation thus becomes inefficient, digitalis can be given, not merely in order to palliate the disease, but with the hope that a relative cure may follow. The digitalis causes the heart to contract powerfully, so as to overcome the obstruction to the circulation and thus keep the patient in health. If this were all, its action would be merely palliative. But while it is being given the heart enlarges, so that after a time it becomes sufficiently powerful to carry on the circulation without the artificial stimulus of the digitalis. Now in this case it is only from an abstract point of view that we can regard the organism as passively undergoing cure through the influence of the digitalis; although death might speedily have resulted had this drug not been given. The *rôle* of the digitalis in the process of cure is as much passive as active. In this process the organism actively utilises the temporary effect of the digitalis on the heart, just as much as it passively submits to the action of the drug. It is thus proper to speak of the physiological *action* of a drug when its administration is regarded from the abstract point of view of physiology. But it is more correct to speak of its therapeutical *function* than of its therapeutical action, since medicine deals with what is concrete.

As another among countless instances of the application of the same principle, may be taken the operation of sewing together the ends of a nerve that has been accidentally divided. This is done in order that the two ends of the nerve may be kept in apposition with certainty. After the lapse of a sufficient time the function of the nerve is entirely restored. When one considers what is implied in this restoration of function, the process seems scarcely less wonderful than the reproduction of limbs in the lower animals. Let us suppose that there is a bundle consisting of several hundred insulated telegraph-wires, each wire being exactly like its neighbours, but coming from a different place: and that this bundle is cut in two. It will be most difficult to find the corresponding ends; and one can imagine the difficulty and confusion thus arising. But the case of the division of a nerve is in every way analogous to that of the division of the bundle of telegraph-wires. What happens usually, if not always, is that the nerve-fibrils of the peripheral portion of the nerve disintegrate, and are replaced after a time by prolongations of the fibrils of the central end, which grow down the connective tissue of the nerve from the point of section. One must suppose, either that these prolongations find their way, each to exactly the same spot as that to which the fibril of which it is a prolongation originally went; or, what seems more likely, that the exact destination of the new fibrils is more or less indifferent, but that the central nerve-cells to which they lead adapt themselves to the new destination of their fibrils. In any case, the restoration of the function of the nerve is a very significant process; and it would be a manifest abstraction from the actual facts to regard this process merely as the joint effect of keeping the cut ends in apposition and other local causes. Sewing together the cut ends has a therapeutic *function*, but cannot be regarded merely as a cause acting from without on the organism. Such considerations as these justify the conclusion that the scepticism above mentioned with regard to therapeutics is based on an inadequate conception of the real nature of this art; and that advances in the treatment of disease are likely to be as great as, if not greater than, advances in the 'diagnosis' and 'prognosis'.

Perception, in so far as it is treated of by physiology, is commonly assumed to be essentially nothing more than a mechanical process, in which physical impulses are transmitted from surrounding objects to the nerve-cells of the brain. The impressions thus produced may set a-going nervous processes of various kinds; and these may end in muscular motion, or in other ways. It is unnecessary to consider here the doctrine that changes in the nervous system give rise to, or are accompanied by, consciousness. That doctrine in its various forms has been exhaustively and finally dealt with by Green. I shall only consider the physical, or what is often called the 'objective,' side of perception—that is to say, perception in so far as it is a process which may be investigated by physiological methods. The use of the word 'perception' in this sense is no doubt objectionable; but it is hard to find a more suitable expression.

If it can be shown that in perception the surroundings affect the organism in a purposive manner, it will be possible to draw from this fact the same inferences as were previously drawn from the fact that the organism acts purposively on the surroundings. A condition which is more or less essential to perception is attention on the part of the perceiving organism. Now this of course might be taken to mean that certain causes acting from within the bodily mechanism must co-operate with those acting from without in order that there may be perception. But to say this is only to put aside, and not to solve, what is a real difficulty in the way of a mechanical interpretation. For it may be asked what it is that causes attention to be directed to one object rather than another. The ultimate answer to this question is that those objects are attended to, the perception of which is of advantage to the perceiving organism, or conduces in some way to its life. And as attention is directed in this manner, even in circumstances which had not previously been experienced by the organism or its ancestors, we may infer that the action is purposive, and that therefore objects perceived are perceived purposively. From this may be drawn conclusions similar to those drawn from the consideration of purposive actions in the case of the earthworm and other cases.[1]

Attention conditions not only the fact of perception, but also the nature of that which is perceived. To two men, especially if they are of altogether different tastes, the same phenomenon will seem altogether different, although both of them attend to it most carefully, and form a distinct conception of it. That which a thing perceived is for the perceiving organism, it is as manifesting in itself the life of the organism, just as any one of the organs has its being as a manifestation of this same life. Thus it is that a man's whole self can be truly said to be expressed in his perception or non-perception of a few bars of music, or a few lines of poetry. It is not sufficient to say that his mind reacts on them just as much as they affect him; for this implies that there is something in them that is foreign to him, which is not the case. They have just as little independent significance in their details as they have considered as wholes. In all that they are for him they are determined through and through as taking part in his life; so that in perceiving them he may be truly said to be perceiving nothing but himself. This is of course only in accordance with the conception previously reached of the surroundings of an organism as participating in its life just as really, though not so intimately, as do its own parts. We are thus enabled to see how it is that separation in time and space is only real in a world looked at abstractly under the category of cause and effect, but becomes altogether unreal when we penetrate behind this abstractness. Nothing less than the unreality of such separation is implied in the doctrine that the bodily parts and the surroundings of an organism have their being and motion in a life that is yet one and indivisible. This life, from its nature, cannot be envisaged as a something that is 'here and now'. It can be thought, but cannot be pictured. In this sense it is ideal. But none the less it is far more real than those abstract aspects of it which are commonly taken for reality.

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[1] To attend effectually to an object of perception is often a simple 'voluntary' act. That is to say, any passing interest is sufficient to direct attention on the object. Frequently, however, far more is required than a mere passing interest; so that it may be quite impossible voluntarily to give the necessary attention. For example, some persons who are familiar with the Prelude to 'Lohengrin' profess to see in it little more than "a study of orchestral effects"; and it may be that no amount of voluntary study of the music will enable them to perceive it as it ought to be perceived. Something deeper than a passing interest is necessary. Even in our ordinary perceptions it is only in appearance that a passing interest is sufficient to direct attention, in this wide sense, on the object. This becomes evident if the perceptions of a civilised man be compared with corresponding ones in a savage, or one of the lower animals.

Apart from this general conception, it seems impossible to reconcile the conclusions of philosophy with those of the natural sciences, and especially physiology. For if an organism be looked upon as nothing more in ultimate analysis than a mechanism kept in motion by energy supplied from the surroundings, it is impossible to avoid conceptions which philosophy has shown to be absolutely meaningless—such as that of consciousness being produced by, or accompanying, certain physical states of the brain. Unless we get over in some way such contradictions as this, either our philosophy or our science must prevail at the expense of the other.

A subject in connexion with which difficulties of this sort are peculiarly liable to arise is that of evolution. It is pretty clear that, if life is more than a mechanical process, evolution cannot be regarded merely as brought about by the action and reaction on one another of organisms and their environment. That it is so brought about is, however, commonly believed. It appears to me to be not difficult to show that this belief is not warranted by the facts. I can only, however, discuss the matter here in a very general way.

When it is said that variations in the environment of an organism tend to produce in it corresponding changes, and that these changes are transmitted to its descendants, a covert assumption is made—the assumption, namely, that the word 'produce' correctly renders the actual nature of the facts referred to. The peculiarities in the breed of dray-horses, for instance, have been 'produced' artificially. But these peculiarities occur in parts of a living organism, which parts have all the characteristics of what is living. For instance, the nerves supplying the muscle and other parts which are so largely developed in the dray-horse, would, if divided, doubtless reproduce themselves in the same way as in other parts. And the behaviour of the parts of the central nervous system which are modified to correspond with the increased development of muscles, ligaments, skin, bone, &c., would give evidence of a participation in the one living whole which we saw that an organism is. As, from its nature, that whole cannot be thought of as acted on from without, it is necessary to regard as *function in* that whole what was taken to be *action on* the organism from without. When, therefore, we say that variations in the environment produce changes in the organism, we can mean no more than when we say that a surgical operation produces a reproduction of lost tissue.[1]

It is thus an error to treat development as a process in which organisms are *made* what they are, or, which comes to the same thing, a process taking place in space and time. This latter statement may seem specially paradoxical; but becomes perfectly intelligible as soon as it is realised that knowledge is not limited to what can be envisaged in space and time.

The idea that abiogenesis is possible or conceivable depends on the same transcendent use of the categories of physical science that is at the bottom of so many other misconceptions. So long as the organism is looked at from the point of view of physical science, it certainly cannot be supposed that there is any insuperable difficulty as to the origin of life from ordinary physical conditions. The whole question is assumed from the outset; and the only real difficulty that can arise is that of drawing a line between the organic and inorganic. But if the contention of this article as to the nature of life is correct, it follows that it is as unreasonable to consider the possibility of the origin of life out of mechanical conditions, as it would be to consider the possibility of the origin of matter and energy from mere relations of time and space. We may trace the steps in the development of life back to the time when the solar system was in the gaseous state. But in thus retracing our steps we carry with us into phenomena which we had abstractly considered to be purely mechanical, the same conception that we originally started with.

The want of a sufficient philosophical vocabulary in English has been a source of great difficulty in a discussion in which it was specially necessary to be clear as to the meaning of the expressions made use of. I have found it necessary to employ words, the use of which, if taken in their ordinary sense, would seem inconsistent. As it appears to be almost impossible for anyone who writes on philosophy in English to avoid such apparent inconsistencies, I have been forced to leave the context to determine in what sense a word is used at any particular place.

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[1] In *Principles of Biology*, pp. 451-457, Mr. Spencer discusses, in relation to the argument of *The Origin of Species*, what is really one aspect of the difficulty of a mechanical interpretation of evolution. I cannot, however, agree with Mr. Spencer's conclusions in the matter.

III.—THE METAPHYSICAL METHOD IN PHILOSOPHY.[1]

By SHADWORTH H. HODGSON.

I.

I PROPOSE to invite your attention this evening to the question of Method; whether there is a distinct and peculiar method in philosophy, and if so what it is. If there is such a thing as philosophy, it must have a method of its own; but at the present day it seems almost as if there was not such a thing. There are philosophies in abundance. There are the Spencerian philosophy, and the Hume and Mill line of speculation, in this country; there are Herr von Hartmann's philosophy, and the line of speculation known as "Theory of Knowledge," in Germany; there are Auguste Comte's Positive Philosophy, and M. Renouvier's Phenomenism, in France; there is the Scholastic Philosophy for the use of Catholics;—these are all alive and vigorous;—then there are some majestic ruins of philosophies, which still afford shelter to their respective votaries; besides which are several minor or less known philosophies, which it would be tedious to enumerate, each employed in battling for its own hand, to say nothing of various philosophies of common-sense, almost as numerous as individuals, which keep their horns very much within their own shells. But apparently there is no Philosophy; and *a fortiori* there is no method.

Truly a disheartening spectacle. And what is worse, if we look at its history, the confusion seems to increase rather than diminish. There appears to be but one fundamental conception, belonging to the old Scholastic philosophy, which is still held by all its modern derivatives, namely, that of the *agency of substance.* Those who discard this conception, as Hume did, fall *ipso facto*, it would seem, into philosophical scepticism, which is the antithesis of philosophy; while those who retain and build upon it diverge continually farther and farther from each other. Philosophers have now to face the question, whether this conception can or cannot be justified as an assumption; and if not, whether philosophy, as opposed to philosophical scepticism, can or cannot exist and thrive without it. *The metaphysical method in philosophy*, which I am about to bring to your notice, will be found, I hope, to yield an answer to these questions.

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[1] Address at the opening of the Session of the Edinburgh University Philosophical Society, November, 1883.

The disintegration of philosophy seemed to have reached a crisis when, towards the middle of the last century, Hume declared that he could frame no idea whatever of power, or of the causal nexus, either between things or thoughts, except so far as custom or habit, founded on a *de facto* but quite inexplicable order of events, was a partial explanation of the latter. For himself, he said, he should continue thinking, because he enjoyed the exercise, but as to thereby reaching anything like *truth*, of that he saw little or no hope. This was virtually a challenge to the conception of substantial agency; Hume virtually taxed it with being an unfounded assumption.

The crisis thus marked issued in a more complete disintegration of philosophy than before, a result which seems at present to justify Hume's position, and entitle him at least to the glory of being a true prophet, far in advance of his age. For, as I need not remind you, there stepped forward now some hundred years ago, to meet on the one hand the growing disintegration and scepticism, of which Hume was the chief mouth-piece, and at the same time, on the other hand, to disintegrate still farther that offshoot of Scholasticism which was then current in Germany, the Leibniz-Wolfian philosophy,—that man from whom the modern period of philosophy is dated, Immanuel Kant. He is generally supposed to have gone to the very root of matters. He made it his first question—*How is experience itself possible?* He thought he had laid the foundations of philosophy in an enduring manner. In this there were many who agreed with him, particularly Germans, and several of them, together with others who were not Germans, proceeded to build on the Kantian foundations. But with what result up to the present time? *Si documentum requiris, circumspice.* Philosophies are legion, philosophy nowhere. Kant indeed disintegrated the Leibniz-Wolfian system, but, to judge by the results hitherto, he did not lay the positive foundations for a philosophy capable of commanding universal assent.

If we ask for the causes of this second, post-Kantian, disintegration, the answer may be given in a single word—*Assumptions.* The *Critick of Pure Reason* contains several assumptions. One is, that the various forms of judgment specified in the Aristotelian logic are immediately and severally derived from processes essential to the thinking faculty. Kant built on this assumption by making it the key to his theory of the twelve Categories. With what result? Why, the ruin of the theory of the twelve Categories involved the credit of the Aristotelian logic, on which it was built, and at a stroke tore away that whole block of masonry from the crumbling edifice of Scholasticism.

This however is a minor matter. Let us see what Kant's main and fatal assumption is. "Back to Kant" has long very naturally been the cry in Germany; and it is a cry which all should echo, inasmuch as from Kant is dated the modern period of philosophy. But for what purpose back to Kant? Is it to adopt his assumptions, or is it to avoid them? The difference is great.

To my mind the imperative reason for going back to Kant is this, that his system is the *reductio ad absurdum* of the main assumption upon which it is built, that assumption being a form of what I named above substantial agency. I mean his assumption of causal agency in the Subject. Many persons, especially those who make Scholastic assumptions, seem to think that, if Kant is not true or tenable, there is no use in going back to him. But the fact is, his untenability is the valuable part about him. His logic is so good, that the assumptions from which he reasons are ruined. Common-sense philosophers, and Scholastics who formulate common-sense, think that, if they can refute Kant, they have done something towards saving their own assumptions. On the contrary they have but witnessed to the irrevocability of their loss. For his assumptions are their own. By all means, then, back to Kant.

Let us see what his main assumption means. In both the great lines of thought from which Kant sprang, the line of Leibniz and the line of Locke, a causal agency in the Subject had been spontaneously accepted. Hume, however, had remarked that Berkeley's arguments about an external world, if consistently carried out, would tell against the real existence of the Subject as much as against the real existence of Matter. He, for his part, he said, could form no idea of power or causality anywhere. The causal agency of the Subject was thus called in question.

What then does Kant? He begins by going to the root, or rather perhaps to one root, of the matter, by asking, How is experience itself, experience of anything, possible? And the answer he gives is—By the real existence of causal agency in the Subject, which synthesises its feelings. His whole philosophy is founded on the assumption of the very thing required to be proved. It is true, the causal agent, with him, is never within, but prior to, experience; manifesting experience, and manifesting itself to experience, by means of *à priori* forms springing from itself, which, from their being links between experience and that which transcends experience, are termed transcendental, and give the name *transcendental* to the Kantian philosophy. But this alters nothing in the essential nature of the thing assumed, I mean so far forth as it is a causal agency in the Subject.

It is worthy of note, that, as against the *tabula rasa* theory of the mind, and on the assumption of causal agency in the Subject, common to the upholders of that theory and Kant, his theory, that there must be some *à priori* contribution to knowledge, is irrefragable. For if there is causal agency in the Subject, it must have laws or ways of working which really contribute to the result, experience. If it contributed nothing to the result, it would not be a causal agent. To regard it as purely passive is impossible. Pure passivity is an impossible idea. It is as much an *ens logicum* as Aristotle's Matter. This, however, is by the way. The real point in Kant is his assumption of agency in the Subject, and the proof that it is, with him, an assumption. Now when a man tells you in one breath, or even at the distance of a few pages, that such and such a thing certainly exists, and that he and the rest of mankind know absolutely nothing about it,—the first of those statements is the statement of an assumption. Kant's theory, then, is at bottom a refinement of the traditional assumption of causal agency in the Subject, and at the same time an attempt at removing that agency into an unknowable or technically a *noumenal* region, where it should be beyond the reach of criticism. His philosophy therefore proposes to be critical and transcendental at once.

There is another assumption in the *Critick of Pure Reason* closely allied to the foregoing and involving it. This is the assumption that sensations, which are the matter of experience, are originally, and as supplied to us from without, an absolute chaos, and that perceptions of order, and even of mere succession among them, that is, the lowest beginnings of experience, are the work of subjective agency. I imagine that Kant was led to make this assumption by the desire to go to the root of the genesis of experience. He would construct experience, without assuming any fragment of experience already existing, since to do so would, he thought, open the door, as it certainly would, to further sceptical questions, like Hume's, to which no answer could be given, would, in fact, be equivalent to assuming an orderly external world. The matter of subjective experience was to be, what Aristotle's physical matter was to common-sense objects, a pure potentiality, out of which by subjective agency, in subjective forms, experience was to be produced. But who does not see that this assumption of a chaos in sensations, out of which experience results, involves the assumption of causal agency in the Subject? For what else remained capable of moulding experience out of them?

This thoroughness in avoiding the assumption of any particle of experience, in explaining the genesis of experience, leads therefore to the most glaring assumption of all. A chaos of sensation is a pure and impossible fiction. It is true that we put together sensations of the various senses into a perception of the external world, as for instance sensations of sight and of touch into solid coloured objects; but each of those sensations severally is orderly both *ad intra* and *ad extra*, has always some duration, or duration and extension together, and always some place in a series of other sensations. Kant's phrase, "the manifold of sense," covers both cases of disorder in sensations, and serves to shelter the case in which the disorder is a fiction under the ægis of the case in which it is a fact. I will show you presently, that to take experience as it is given, that is, as a sequence of orderly sensations (though not orderly in the sense of being worked up into an external world of material objects), involves no assumption of an external world as the cause or source of that experience. Meantime it is enough to have shown, that the opposite course of assuming a chaos in sensations does involve the corresponding assumption of causal agency in the Subject, which is Kant's prime assumption, made to account for the genesis of experience as a whole. His noumenal Subject thereby became the constitutive agent of the whole objective world; and thereby also this noumenal Subject, though individual originally in Kant's intention, lost all distinction of persons, and became, as the noumenal subjective agent producing and manifesting the phenomenal world, what Kant's immediate successor called the *Absolute Ego*.

Whereupon all Germany went mad; the voice of sober criticism was overpowered. Maimon's distinct step forward in the critical direction was disregarded. The crop of theories constructing the universe, which followed from this beginning, I need not describe. It became the fashion to construct the universe. It was as if every one had said —'Go to, let us discover a central principle whose efficacy shall reach unto heaven'. Many Towers of Babel arose in consequence, each built upon its own peculiar central principle, derived from Kant, some special form of causal agency in the *Noumenon*. Spinoza revived and walked. His wisdom was justified of many children. The towers were, some of them, very fine specimens of architecture. But as for reaching heaven, never was there a more disastrous exemplification of the Protagorean *πάντων μέτρον ἄνθρωπος*. That famous unit of measurement was applied to the universe, and the universe appeared incommensurable. It was a circle which refused to be squared.

Now observe, in one sense it is no assumption and involves no fallacy, to apply the *πάντων μέτρον ἄνθρωπος*, for it is not in man's power to do otherwise, he has no alternative course. But it is a very different thing to *formulate* the *πάντων μέτρον ἄνθρωπος*, to assign the mode in which self-consciousness is identical with its objects, and make that formula the basis of your reasoning. You are then making a real assumption; assuming the truth of your formula, and applying it *à priori* to experience. This is what the post-Kantian ontologists did. They applied a formulation of the *πάντων μέτρον ἄνθρωπος* to measure and construct the universe. Hegel, for instance, assumes an agency, subjective in kind, working by the Principle of Contradiction, an agency of Thought which he calls Dialectic; Schopenhauer an agency, subjective in kind, which he calls Will; and both being exhibited as the constructive agencies of the Universe. The towers built by these measurements may be seen standing unto this day, in isolated and helpless magnificence. The builders have not scaled heaven; they have not measured infinity; they have not read the riddle of the universe; they have, like Frankenstein, created in their own image a *Noumenon* which mocks them. Yet still they build. "More Towers" is still the cry. Von Hartmann's is still in progress.

Truly a disheartening spectacle, especially when we consider that the cause of the builders is ours, that it is our business as well as theirs, being the business of philosophy, to render the universe luminous and intelligible to human thought; still more when we think that in speculation must be laid the basis for agreement in action, in all departments of human activity, religious, ethical, social, and political, if indeed such an agreement is ever to be attained. The importance of the service which philosophy can and ought to render to mankind can hardly be overrated; but this does not mean that philosophy can ever play a large or conspicuous part in human affairs. Remember the fable of the Lion and the Mouse. Philosophy is to human nature as a whole, with all its purposes and its struggles, the mouse which gnaws through the meshes of the hunter's net which holds the lion in its toils. But it is not the time to dwell on these points now. The point I wish to insist on is,—what hope or what means there may be of revivifying philosophy, one and indivisible, as distinguished from the mushroom crop of philosophies, the various *systems* of philosophy which men are making, each for himself, out of the principle or set of principles which may happen to commend itself to him as self-evident, either from his own reflection, or on the authority of some leader of thought who has chanced to command his attention.

I take it that the great philosophical problem of the present day is this, to put philosophy on the basis of a definite pursuit, having a field common to all workers, like one of the sciences, so that each worker shall add something to the common stock of knowledge, whether it be by perception of new truth or by correction of old error, without proceeding to construct afresh the whole previous acquisition on some new and comprehensive principle evident in the first instance to himself alone. It is to make philosophy more than the philosopher, just as science is more than the man of science. For this purpose there must be a method common to all workers, common, not to contemporaries only, but also to predecessors and successors, a method which each may apply to the phenomena of his own experience or consciousness, though not of course by simple interrogation of it without knowledge of previous speculations. The most careful study of what has been already acquired, and of the ways which others have trodden, will still be as requisite as ever. But in addition to this, there must be the common method also.

The imperatively pressing nature of this purpose of reformation stands out clearly from the history of philosophy, and more particularly from its history since Kant. The great lesson to be learnt from this later history is the futility of constructing a theory of the universe on any principle of causal agency, however apparently certain, before making an exact analysis of the phenomena which fall actually under observation, and especially before we know from that analysis, what precisely the term *causation* means. The principle of causation was the traditional assumption which Kant adopted from Scholasticism, and transmitted to his successors, and this it is which has ruined and is ruining, from within, so many of these theories. They have assumed the general conception of causal agency as equivalent to a knowledge of what causal agency consisted in, or of the *perceptual* content of that general conception. It is a case of a general term being taken for an actual or real thing, a too genuine instance of what is known as the *Realism* of the Middle Ages. So far as at present appears, Hume was right; we are as far as ever from any knowledge of what constitutes causal agency.

Considerations like the foregoing have led me to the conclusion, that we must make a radical change in our method of philosophising. Instead of having recourse in the first instance to an hypothesis in order to explain the genesis of experience, the genesis of matter, or the genesis of both together indistinguishably,—hypotheses, which, from the very terms of the problem so stated, must transcend, or have their object prior to, the things they are employed to account for,—we must have recourse in the first instance to experience itself, and see what its content is, apart from any hypothesis of its cause or mode of production. The conception of cause itself is a part of experience; and thus to assume it as *per se notum* to account for unanalysed experience is to make an unknown account for an unknown, the distinction between them being unknown also. Moreover, since hypotheses can be adopted only when we have formed some notion, true or false, of what those things are, the origin of which is to be accounted for, and which they are adapted to explain, it follows that, if this notion is untrue, it operates like a foregone conclusion in argument, leading us first to look for our hypothesis in a wrong direction, and then to manipulate the original *data* into conformity with the hypothesis we have adopted.

What I say then is this,—Throw yourself frankly on experience. Be not afraid of its misleading you, if only you can get it pure, without admixture of self-made puzzles. Experience without leading-strings is the thing to trust to. But at the same time it is most difficult to get, since we put it into leading-strings involuntarily and unwittingly. Experience without leading-strings is the thing to aim at and work for. We have after all no other source, no other test, of knowledge. Hypotheses will not alter facts. Whatever the facts be, let us face them. In one word, have faith in the order of the universe. To go simply to experience is, in a humble but very real sense, to exercise faith. It is cheerfully accepting an unknown future, in preference to insisting on our present notion of it. We must give up, not professedly only but actually, our most subtil, familiar, and insinuating imaginations, if we hope to attain truth. Truth is like Shakespere's Portia, listening to no suitor till he has proved his sincerity by selecting the leaden casket inscribed with the words, *Who chooseth me must give and hazard all he* *hath.* That is the proper temper of true love, and that is the temper in which we must approach philosophy. We must make no bargain with truth.

It is said and most truly said, that we ought to be perfectly indifferent, perfectly receptive, with regard to experience, to bring with us no bias of our own. But what I want to point out is, that to maintain this indifference, receptivity, and freedom from bias, is itself a decided attitude and temper of mind, which it costs a determined effort to maintain. It is a positive temper of mind which we may call either faith or love of truth for its own sake, the very opposite of a foregone conclusion. Though positive, it furnishes no premiss, initiates no line of argument, favours no particular result. What it initiates is *method*, a method of getting experience pure. In order to give up those insinuating imaginations which constitute a bias, we must first find them out. It is an instance of being biased by such imaginations, when we attempt a construction of the universe, either in avowed separation from analysis, or in undistinguished union with it, *analysis* meaning analysis of the universe *as known*, or as in knowledge, that is, experience in the widest sense of the term. To construct the universe from first principles can be nothing but a bad imitation of science, working with unverifiable instead of verifiable hypotheses.

If the foregoing diagnosis of the philosophical position and problem is correct, philosophy will fall into two main parts or branches, analytic and constructive, of which the analytic must be treated first, before the other is attempted, or even held to be possible,—so entirely will it depend on the results of the analytic part. But this division of philosophy into two parts, analytic and constructive, the former being the condition of the latter, is, you will observe, a division of method, resulting from the precept of subordinating everything to analysis. It is a theorem relating, not to the object-matter of philosophy, but to our treatment of it. The same object-matter may be treated under both heads, or twice-over. There is a separation of two branches of philosophy because there is a distinction of its two methods, analysis and construction.

Method is the practical part of speculative philosophy as a pursuit—*philosophia agens*—that part of which *we* contribute to the resulting discoveries of truth. And it is a dictate of plain good sense, that so soon as we are aware of the intimate and subtil nature of the disturbance which our familiar conceptions and involuntary assumptions cause in the phenomena under examination, we should seek to formulate and distinguish the part which we contribute to the pursuit, from that which is due to the phenomena themselves. We then know where we stand, and what we are doing. This is a thought closely similar to that conception of the province of *Critic* analogous to that of *Logic*, which was Kant's guiding thought in instituting the Critical Philosophy,—to test the powers of the mind, and see what part the mind contributed to experience. Only, as I have shown, Kant mixed the assumption of agency with his conception of the mind and its contribution; whereby not only his philosophy became a *positive* and *transcendental* (as well as a *critical)* philosophy, but also this further result came out, that the mind's action was in some cases *constitutive* of truth, in others *regulative* only. Whereas, the fact is, that the mind's action is regulative from the first, and regulative exclusively; and to distinguish and formulate that regulative action is to distinguish and formulate the Method of Philosophy.

II.

Having thus attempted to show the necessity of a method in philosophy, distinct from the phenomena to be examined and from the results to be reached, and having sketched in outline the requirements which a method must fulfil, and the services which it may be expected to render, it follows that I should attempt to show you its practicability, or how it will present itself when we propose actually to apply it, in the first or analytical branch of philosophy. I will accordingly exhibit it under two heads, first, its main characteristic of being subjective analysis of experience, directed to separate the involuntary admixtures of thought from the content of thought as a whole, and prevent them from being adopted as assumptions of independent truths; secondly, its guiding principle in this process, which is nothing more than the effectuation of the subjective analysis, and consists in the analytical distinction between the question, *what things are known as*, which I call their *nature*, and the question, *how things come* to be what they are known as, which I call their *genesis* or *history*. This distinction is due to Aristotle; it is his τί ἐστιν and πῶς παραγίνεται We shall see the import of each of these characteristics as we proceed.

But first and foremost there are two distinctions to be mentioned, subsidiary to this process, and of a logical nature, distinctions which relate to the use of language, and are directed to guard against the fallacious assumptions which creep in through that entrance. Language is the creature of thought, but created, for the most part, in pre-philosophic times and by pre-philosophic people. When once created, it stereotypes the dim and vague thoughts which gave it birth, lends them distinct outline, and makes of them fixed, familiar, forms and grooves for subsequent thought to assume and move in, forms and grooves which thenceforward appear to represent obvious and self-evident facts.

The first of these logical distinctions is that which J. S. Mill has made his own, though Scholastic in its origin, the distinction between denotation and connotation. Its force lies in this, that a term used as a term of denotation is used "without prejudice," as English lawyers sometimes say, to the real meaning or true connotation of the term, which is left to be settled afterwards. It simply designates the things spoken of, without making any use of their meaning or connotation farther than to designate them, and propose them as subjects of consideration. Since every term has a connotation, and the commonest words have the most unsettled connotations, it is clear that, without this distinction, a mutual understanding would be rarely attainable. We should not be free to use the commonest forms of speech, without being liable to be held committed to some abstruse theory. For instance, in saying, *I see a man*, I might be committed to an intuitive knowledge of another consciousness, since how otherwise could I see that it was a man I saw?

The second logical distinction is also of Scholastic origin, the distinction between terms of first and second intention. A term of first intention is a term used to signify any object which has perceptual form, any individual object of thought. A term of second intention is a term used to signify an object which has conceptual form, that is, as related to other objects in thought, or as a member of a class. The force of this distinction is, that, while all terms can be used in both ways, a term used in the second way characterises the thing signified merely by some relation to other things, assuming the thing itself to be known, while a term used in the first way, or as a term of first intention, signifies the thing itself as immediately present to consciousness. We have in this distinction a means of discovering whether we are assuming the thing spoken of as already known, and if we are, whether we are speaking of it as it can be brought before consciousness immediately. For instance, in speaking of a tree, do I mean the picture I form of it in consciousness, or do I mean the relation I imagine it to hold to other trees, and to objects which are not trees, supposing that I already know what trees are? It is a distinction directed against the assumption, which is latent in all general terms, that we already know the things to which they are applied, an assumption which may or may not be warranted. For instance, in the above case of *tree*, it is warranted, since I have a distinct perceptual picture of a tree *quâ* tree. But in the cases of *cause* and *noumenon*, which we have had occasion to speak of above, I have no perceptual picture of cause *quâ* cause, or of noumenon *quâ* noumenon, but these are relations taken as objects related. The relation is here the only object of the terms; whereas a relation and its content together are the object of the term *tree*, namely, the parts of the tree and their relation to each other. In the former case I characterise a thing solely by its relation to another thing; in the latter case I characterise it by its perceived content, that is, its parts in relation to each other. Both these logical distinctions, I would add, are distinctions in the use of terms, not in the terms themselves, since words have no marks whereby their several uses may be distinguished.

I now come to the first of the two heads under which I propose to bring the positive consideration of method, namely, its character as subjective analysis of experience, without assumptions, and directed against them. In the first place, what is meant by the method being subjective? In one sense all knowledge must be subjective, and cannot avoid being so. Even when we speak of abstract existence, we speak of it as known or surmised; in other words, it is an object of subjective consciousness; and to this kind of subjectivity we are all manifestly restricted. In what sense, then, distinct from this, is the true method of philosophy said to be subjective? It is in its making this fact of subjectivity, with its double aspect of all things, which is already by institution of nature its instrument, also its object, and thus criticising itself as it proceeds. At every step the subjective and objective aspects are compared, and we are continually asking ourselves—Do I really see that, Do I really mean this? We are continually recurring to our own subjective experience, or, as I have usually been in the habit of expressing it, we are continually exercising *Reflection*.

Now you see that this process is the opposite of that which is practised in science. In science it is taken for granted, and then overlooked, that we know and test knowledge only in subjective experience or reflection; recourse is had immediately to the objects, which are assumed as existing independently of our knowledge. Science takes things as in existence, and philosophy takes them as in consciousness. Philosophy thus deals with the opposite aspect of things to the scientific aspect, and its aspect, the subjective, subtends, as it were, the objects of all the different sciences, and is the one subjective counterpart of them all. Whether these objects are mathematical figures or calculations; physical bodies or forces; psychical agents, actions, or states of consciousness; that is, whether they are objects of mathematical, physical, or psychological science; the subjective aspect, considered by philosophy, is their common counterpart. States of consciousness, which are among the objects of psychology, have a double aspect, just as much as physical things; their objective aspect, alone, is the object of psychology; in their double or subjective aspect, they are the object, not of psychology, but of philosophy, and are subjected to a new method, over and above the psychological.

In adopting this subjective method and critically examining the subjective aspect of things, philosophy does not for a moment quit the ordinary world of common-sense, the ordinary experience common to all mankind. That common world is the world in which we all stand, which both science and philosophy begin with, and which they make their basis and starting-point. The man of ordinary common-sense treats the world in one way, the man of science in another, and the philosopher in another; the second way does not subvert, but is superposed on the first; the third does not subvert, but is superposed on the first and second. The third is the subjective analysis of all the phenomena presented by the two foregoing methods of dealing with the common object-matter of experience, and of the conceptions which they frame of it.

This will perhaps be best exhibited by contrasting the philosophical with the psychological way of dealing with that object which is common to them both, states of consciousness or conscious experience. Psychology takes an object, a tree, for instance, and tells you what is due to sight, what to touch, muscular sense, association of ideas, judgment of distance, shape, magnitude, and so on. An object of consciousness is thus analysed into states of consciousness and their combination; and these states and their combination are referred to the mind or organism on one side, and to objects external to the organism, and to the mind localised therein, on the other; and thus the whole group of states of consciousness, composing the object as known, is analysed; and its genesis partially explained.

But that is not the method of philosophy, which is not permitted to assume powers, either in the mind, or organism, or in external things, producing the states of consciousness in combination which is called a tree. Be these agents and agencies real or unreal, knowable or unknowable, it may be psychological, but it is certainly not philosophical to assume them. Nor does philosophy indemnify itself for its abstinence in respect of these assumptions, by indulging in assumptions of another kind, such as a general consciousness, or a noumenal substrate, or a potency of matter, determining that what I call *I* shall what I call *see* what I call *a tree*, where I call *here*, when I call *now*.

The method of philosophy is simply to turn the tapestry. Instead of taking experience in the form of objects, it takes it in a stream, as it comes, not drafted off, by an art so old and familiar that it has become wholly unnoticed, into several rounded-off objects, a bit to this and a bit to that; as when, for instance, seeing a brown and green expanse of a certain outline, and with parts of it in a particular kind of motion, I instantaneously connect it with certain remembered sensations of touch, locomotion, &c., and draft it off into a mental pigeon-hole labelled *tree*. That is not what philosophy does. Its business is to undo, to invert, that process. It takes the green and brown expanse as it comes, in its proper place in the stream of consciousness, its business being to analyse consciousness, not trees. So taking it, I am aware of the larger visual expanse of which it was a part, and also that while seeing it I heard (suppose) a sound, making part with it of one stream of consciousness. Philosophy does not, by instantaneous association, draft off that sound into another pigeon-hole labelled *thunder*, but analyses the stream, consisting of tree, thunder, and other varied contents, without stopping to notice that they are called so, and compose a world of external objects. Its business is with the stream, and the features which belong to it as a stream of consciousness. The fact that these objects come to us in a varied stream of consciousness entirely escapes the notice, or at any rate is held irrelevant to the purpose of psychology, a science which studies the relation of an assumed percipient to an assumed external world, and therefore makes its beginning with *the tree* ready marked off, as an object of the sentient *ego*. Now subjective analysis of the stream of consciousness, *without assumptions*, is the whole business and function of philosophy.

But while, on the one hand, the function of philosophy is thus reduced to a point, and is so simple that every one can perform it, seeing that reflection on his own consciousness is within the reach of every one, yet on the other hand the range of object-matter, over which it extends, is vast in the extreme, being whatever falls into the content of a single consciousness, and every consciousness is the subjective counterpart or mirror of an universe. By taking experience on its subjective side, without hypothesis as to its origin or the origin of its parts, we have a means of examining its whole content in detail, comparing, classifying, and analysing, not only its parts, but the relations of its parts to one another. Not only the external world comes before us for examination in this way, but the various modes of consciousness itself; its feelings, pleasures, pains, emotions, æsthetic perceptions of beauty, poetic imaginations, volitions, actions, judgments; including all kinds of theories and conceptions and imaginations in science, art, ethic, and politic. Ethical theories founded on ideas of right and wrong, good and evil, advantage and disadvantage; and religious beliefs which transcend the boundaries of the seen world; everything is part of the content of consciousness, and in order to be grasped firmly must be approached by examining that content closely. The present method, therefore, has the keys of practical as well as speculative theory. Ethic, which stands at the head of all theories relating to practice, cannot be successfully treated unless it is based on a foundation of experience subjectively analysed, since what is true of external experience (so called) is true also of internal. Yet how often do we see Ethic approached off-hand as an independent inquiry, assuming the nature and existence of individuals as things already known, and then basing itself on some supposed set of self-evident first principles, always found sooner or later, and usually very soon, to be in hopeless conflict with some other self-evident set. But more cannot be said on the range of subjects dependent on subjective analysis of experience, without applying the method as well as describing it, which would be beyond my present scope.

Now it is plain, that no man can be required to give or entertain a theory as to *how* he can have experience, at the same time that he is having it and attending to *what* it is. The experience must be taken *as given*. It is our *datum*. But in using, with Kant, the word *given*, I am not to be called upon to say given *by what* or *to what*. I use the word *given* denotatively, to designate what I mean, abstracting from that part of its connotation which involves a giver and receiver. These notions of giver and receiver, source of percepts and percipient, will have to be found *in the experience*, by analysis. I am not to be taxed with denying my own individual existence, nor with substituting for it an universal consciousness or Absolute Ego, or any other form of the Absolute, nor yet with supposing that things exist only as modes of my individual consciousness, which involves their dependence on it, a theory which has been characterised as *Solipsism*, (all which things would be violent assumptions), because I put away, as matter of method, all questions of what experience depends on, until I have first satisfied myself what the content of experience is, at least so far as to know what is meant by *dependence*, as part of that content.

This point, with regard to the agent in consciousness, Soul, Mind, Ego, or Subject, call it what you will, I would particularly insist on. It is not denied that *there is something there*, agent or agency, which we may *denote* by those names. The method merely requires us to know something of *what* it is, before saying *how it comes* or *what it does*, or whether the *connotation* of those names is a fiction or a fact. So long as it is held to exist without being known, we are at the mercy of every charlatan who roundly asserts this or that about it, on the authority of his own insight. One says black, another white. One vows that it is spiritual and incorruptible; another that it is material and perishable. Now these four things are not matter of immediate inspection pure and simple; they involve inference, or at any rate interpretation of inspection. What the present method does is to require, that the immediate marks, by which such properties as these are attributed to the Subject, should be assigned. By what marks do you attribute agency, or know that it is an agent? It does not follow that it is *unreal* because we have no positive knowledge of it. But let us know where we stand, and what we are doing.

Again, the alternative—Ontologist or Psychologist—which formed the decisive question in philosophy in the early part of this century, does not arise on my method. That alternative arises from putting the question *how comes* experience, with or prior to the question *what is* experience. The distinction between psychology and ontology, ontology then standing for philosophy, fell between two theories of the *genesis* of experience, the psychological which referred it to individual conscious agents in presence of an external world, and the ontological which referred it to some transcendent, or it might be some immanent and absolute, source at once of world, and agents, and consciousness. But the distinction between psychology and philosophy falls very differently, on my method. It falls, not between two theories of genesis of experience or consciousness, but between the analysis and the genesis of conscious experience, however that genesis is conceived. Psychology is with me one of the positive sciences, and philosophy is the subjective counterpart of them all.

I think it will now be clear to you, as I said above I hoped I should make it, that to take experience simply as given, avoiding the assumption that sensations are given as a chaos, does not involve the assumption of an orderly external world. Whether there is an external world, and whether it is orderly, we have to learn from analysis of experience as given. We are not to assume either that it is given orderly or that it is given chaotic. To assume order is to assume too much in the world, to assume chaos is to assume too much in the percipient. In either case a genesis of experience is assumed, and mixed up with pure analysis of it; and to that extent we are deserting experience and taking our stand upon fancies. If we *find* experience orderly, if we *find* some order in the stream of consciousness when we analyse it,—this surely is not a result to marvel or to grieve at, though it may have something in it humiliating to human conceit, as dispensing with the necessity of our assistance in creation, or, as Kant too modestly puts it, in "constituting objects".

The fact is, that this extreme disorder and isolation in sensations, which Kant's theory logically requires, and which I have called a chaos, is an utter illusion. It is not only without proof as a fact, it is impossible as an imagination. It cannot even be *thought*. It is not merely a fiction, it is an unthinkable fiction, illusory even as a falsity. Yet it is on this illusion, with its necessary complement, the assumption of a real but unknowable agency in the Subject, that Kant's distinction between the phenomenal and the transcendent, or noumenal, rests, as well as all post-Kantian ontologies which build on that latter distinction. It is the inside of a soap-bubble.

But perhaps you will say to me, that without this assumption of chaos in sensations Hume is not answered, and therefore that, if it cannot be assumed, Hume cannot be answered. If Kant is not allowed to *assume* order and nexus in sensations on the ground that this would be no reply to

Hume, and so is driven to assume chaos, how can the *finding* of order and nexus in sensations be an answer to him? I reply, that *finding* order and nexus in sensations is very different from *assuming* them. *Finding* them as an inseparable and primordial fact in sensations convicts Hume of an assumption in supposing that they require accounting for, or in other words, that disorder and isolation are the primordial fact, while order and nexus are derivative facts. Kant *adopts* Hume's assumption, pushes it to its extreme, and then makes another assumption, causal agency in the Subject, to account for order and nexus. Kant assumes with Hume, that they require accounting for. Now to find them is not to account for them; and therefore it is, that Kant must logically assume chaos. He is with Hume looking for the *genesis* of order and nexus. And thus the ruin of Kant's theory is the ruin of Hume's assumption. But our present method, which directs us to ask first, *what* order and nexus *are*, before asking for their *genesis*, puts us on a track by which we perceive, that order and nexus are inseparable and primordial facts of experience, a perception which precludes us from assuming that they require accounting for, or seeking for their genesis. Thenceforward we have only to trace the development of one kind or mode of order and nexus out of another kind, that is to say, the order and nexus in the external world, and the order and nexus of logical ideas, out of the primordial order and nexus in the stream of consciousness.

This brings me to the second head under which I propose to consider the method, namely, its adopting the analytical distinction between *nature* and *genesis*, or *history*, as its guiding principle. So intimately and thoroughly is this distinction bound up with it, that much which also falls under the present head has been already said under the former one. In fact the analysis of anything cannot but be the analysis of *what* that thing is; and subjective analysis, of what that thing is known as. Nevertheless there is a gleaning which still remains to be gathered. Questions of genesis or history in one way come under questions of subjective analysis, since the events which they relate to are part and parcel of experience, and in another way they form a group apart from them. There is a comprehensive sense in which the question of analysis is to be entertained, which embraces under it both the question of analysis in a narrower sense and the question of genesis in a narrower sense. These questions in the narrower sense form two groups contradistinguished from each other, both being contained under subjective analysis in the wider sense. We have hitherto been occupied with analysis in the wider sense, in which it includes the whole subjective aspect of experience. We have now to distinguish the two groups taken in the narrower sense from each other, and show how they combine and interlace, which will be also showing how the distinction between nature and genesis is the guiding thread of the method. In passing to this second head of the subject, we are not passing from analysis to genesis, but from the subjective aspect of experience as a whole, and subject to analysis as a whole, to the relation between the nature and the genesis of its parts, as two divisions of the whole subjective aspect. It is analysis which distinguishes between itself and genesis, just as it is light which manifests both itself and objects. The relation between analysis and genesis in the narrower sense, or between the two groups of questions which are contradistinguished from each other, is what I have now to do with.

What, then, is the meaning of the question *how comes* so and so, of the genesis of a thing, or the dependence of one thing on another? It means that, having separated in thought some one portion of the stream of consciousness from the rest, and analysed it *ad intra*, we proceed to ask what preceding or accompanying portion or portions of the stream are those without which it, being what it is, would not be when and where it is. Those portions are its *sine qua non* conditions, and on them it is said to depend for its genesis. The whole sum of such conditions of a given thing is called its cause, a definition of cause which Mill again has set his mark on, and which is perfectly sound when taken as a definition of method, to which I now restrict it. We begin by analysing a given thing, or portion of the stream of consciousness, and in order to assign its conditions, and bring them into relation with it, we have to analyse the conditions also. Every part or feature in the analysis of a given thing has its correspondent (I do not say *similar)* in some feature or features of its conditions. They then make with it a whole, consisting of a process or chain of causation or dependence, which is now analysed both in its parts and in their concatenation, so that our knowledge of it as a whole is again analytical. Analysis is the beginning and the end of the whole proceeding. We have thus a method which brings the whole stream of consciousness under examination.

But perhaps you will say to me, Why restrict yourself to conditions, when the first step of separating and analysing a given portion has been taken? Why not proceed to ask what its effects will be, what it will do, how it will behave, what it will be followed by? Why go backwards in the stream, and not forwards in obedience to the dictum, *operari sequitur esse*, seeing that past experience offers us apparently equal facilities for tracing causes to their effects, as effects to their causes? The answer is plain. In going from a given analysed thing to its cause or sum of conditions, I have a limit to the inquiry; the analysis of the given thing tells me to some extent both what I want to know, and when I have got an answer to it. But if I go from that analysed thing to its effects, I have to collect all the other conditions into combination with which it may come, and according to which its effects will vary. A given analysed thing is a *sum* of effects, but it is only a *bundle* of conditions. It *focusses* the conditions on which it depends, it *scatters* the conditions on which its effects depend. To follow it in its effects, I must find out all its possible combinations, and distinguish the contribution of each of its component elements severally, in the results of each combination severally. This latter process is applicable in science, by means of actual experiment, for there we can vary the combinations and see by actual inspection how a given thing behaves in each of them; but it is not applicable in philosophy, where we are engaged in examining a content of consciousness by thought, for there both the combinations and the resulting effects must be imagined by hypothesis, and we do not attain a knowledge of the effects of a given thing, until we know the effects of each of its elements of analysis in all its possible combinations. This process, which is evidently hopeless, would be synthesis, prediction by imagination. The only true synthesis is scientific, consisting first in constructing hypothesis, and then in putting the things actually together in experiments which test the hypothesis.

I argue, therefore, that going backwards from effects to causes, so keeping strictly to analysis, is the only line practically open to a subjective method, which keeps strictly to experience, and begins with the analysis of given things. The opposite course can lead only to substitute imaginary anticipations in the place of facts. And that it actually does so is shown by the history of philosophy; for the deduction of the operation of things, taken as units, from their essence defined by *genus* and *differentia*, thus making them into causal agents, is the main idea which Scholasticism derived from Aristotle, and the application of which has brought philosophy to its present state of disintegration. It is to this synthetic or deductive method that I now oppose the method of backward-going analysis, a method which, I beg you to remark, covers the whole ground, just as much as the other. For, though we do not begin with looking for the effects of a given thing, yet we come upon them in looking for the conditions of other given things; they appear under the name of conditions of B, instead of under the name of effects of A. But they appear as the connexion between A and B just the same.

Two things must next be noted, first, that this method of inquiring into the conditions of given things, or portions of the stream of experience, not only covers the whole ground of experience in the large, but also covers it down to the minutest portions. It is perfectly exhaustive and flexible, a telescope or a microscope at pleasure. Secondly, though covering the whole ground, it tells us nothing whatever of the nature of action or causation or efficiency. We know nothing from it of what makes a cause causal, or *what* a cause *is* in itself, or *quâ* cause. At the same time it does not preclude us from knowing it, if experience should ever give us that knowledge. These are questions with which, as method, it has nothing to do, and which it leaves just where it finds them. All it does is to provide for experience being rightly and sufficiently examined. The content of consciousness is the object-matter of the mechanism, or inherent logic, of consciousness.

Hitherto, you will observe, I have spoken indifferently of things or portions of the stream of consciousness, implying that the method was applicable generally, without distinction of content. That was my intention. But you may perhaps question its applicability to realities. You may say that it is applicable only to consciousness as such, to our thought of things and not to things themselves; in fact that it is a method of what some would call subjective logic, or idealism, and nothing more. I proceed, then, to show that it is applicable, not only to things and thoughts indiscriminately, but to both severally. But for this purpose I must of course presume, that this distinction is already drawn and established. To show how it is drawn and established would be to apply the present method, instead of merely describing and explaining it. I adopt, then, as admitted, the psychological distinction between material things and sentient beings, on the one hand, and states and trains of consciousness belonging to sentient beings, on the other, such states and trains of consciousness being the medium whereby sentient beings come by a knowledge both of themselves, and of material things.

You will observe, that this medium of states and trains of consciousness is what we have hitherto been occupied with; it is what we have called experience. And out of its content we are now supposed to have contradistinguished two classes of objects, sentient beings as its psychological Subjects, and material things as the Objects of those psychological Subjects, both which classes of objects are held to be *real existents* in opposition to their matrix, so to speak, the states and trains of consciousness which constitute the knowledge of them, and out of whose content they have been distinguished. These states or trains of consciousness are *matrix* from the philosophical point of view, *medium* from the psychological. I have already shown the applicability of the method to this matrix generally. We have now to see its applicability to the matrix as opposed to, and distinguished from, those two classes of real existents ; that is to say, to states or trains of consciousness as such, on the one hand, and to real existents on the other.

Now this applicability is effected in the simplest manner. The conception of *condition* becomes applicable to consciousness and real existents severally, by introducing into consciousness in general, that is, as matrix or medium, a distinction between conditions, corresponding to that already introduced into it between these two classes of objects. The conditions, upon which states and trains of consciousness as such depend, are themselves states or trains of consciousness ; they are feelings, imaginations, volitions, or thoughts, antecedent to or concomitant with those to which they give rise, and fall under the general name of conditions of knowing a thing, *conditiones cognoscendi*. Among these are some which are conditions of knowing for certain, by way either of immediate inspection or reasoning. These are *logical* conditions of truth. The remaining class of conditions, those upon which real existents and their trains of action depend, are themselves real existents, or actions of real existents ; and these are called by the general name of *real conditions*, or *conditiones existendi*. The method is precisely the same as above described ; the distinction drawn in its cardinal conception of *condition* rendering it applicable to the distinction now existing in its object-matter.

But there is a circumstance to be mentioned, which has been the source of much confusion. States of consciousness, you will have observed, appear twice over, once as the undistinguished matrix or medium, and once as the opposite of real existents ; a doubleness parallel to that noticed above in the case of analysis and genesis, and springing from the same root, namely, from the fact that Reflection is perception both of itself and its object, its *total* object being double, namely, self and object together. Here we have the same doubleness in the case of conditions. A state of consciousness has two sets of conditions, (1) other states of consciousness which are its conditions *cognoscendi*, and (2) some action or actions of real existents which are its conditions *existendi*, I mean processes either in the sentient being, or in the external world in action and re-action with it. States of consciousness have thus a double aspect, (1) *quâ* content of consciousness, (2) *quâ* states of consciousness of a sentient being; and each aspect has its own set of conditions. They have thus a double dependence. As contents of consciousness, related to other contents, they depend on conditions *cognoscendi*, and as belonging to sentient beings they depend on real existents as their conditions *existendi*. When once the distinction creating psychology has been drawn, states of consciousness have to be treated under both heads of conditions, because they are placed, by that distinction, under two categories. But then the two kinds of conditions are distinguished for the express purpose of corresponding to these two categories, and properly treating the things which belong to them severally.

Resting on these two correspondent distinctions, and to meet the demands of this double work, we have the division of labour between psychology and philosophy. Psychology has nothing to do with consciousness *quâ* content, or with the relations of its parts as content, in which aspect it is the mirror or subjective side of the universe of things. That is the domain of philosophy. The business of psychology is with sentient beings, with the classification and examination of their faculties, the genesis of the various modes of their sentience and intelligence, and generally the real actions and re-actions between them and their environment. Dreams, for instance, are as much the object of psychology as truths, and in the same sense, namely, in their genesis and dependence on their real conditions, whether they be truth or dream; but dreams are not the object of philosophy in the same sense as truths are.

The province of psychology is marked out for it by the distinction between nature and genesis, which is the main distinction of philosophical method, and is a distinction drawn by philosophy. Without this distinction and method, the spheres of psychology and philosophy would be inextricably confused; which indeed is universally the case at present, the confusion often being carried so far as to assign to psychology the assumption of a conscious Subject and the analysis of its states of consciousness as such, while leaving for philosophy to investigate the nature, and prove, if it can, the real existence of this hypothetical Subject. In reality, psychology stands, with respect to distinction of province, in precisely the same relation to philosophy as the other positive sciences stand. The business of science is with real conditions, that is, with real existents and their actions so far as they stand in causal relations to each other, and to other phenomena which depend on those relations, meaning by *other phenomena* such as are described by unanalysed terms of common life, an eclipse, for instance. Earth, moon, and sun, in certain relations, are what we have now called real existents; an eclipse is a resulting phenomenon.

Thus it is that the philosophical distinction between the questions *what* and *how comes*, which is the guiding principle of philosophical method, gives rise, when applied to experience, to the distinction between *nature* and *genesis* in the objects of experience; and, in further application to experience, compels the further distinction of conditions of genesis, into conditions *cognoscendi* and conditions *existendi;* and still farther, institutes on this basis a division of labour, or chart of the functions proper to philosophy, psychology, and the rest of the positive sciences. Each of the two classes of conditions rests on a basis of analysis. In every series of conditions we begin by analysing a given thing; and the analysis of it will be either an analysis *quâ* content of consciousness, or an analysis *quâ* existent; but in either case it will be analysis. The analysis of real existents will be into things really existent, and the analysis of contents of consciousness will be into other contents of consciousness. In either case, the members of analysis may be called, for convenience, conditions of the *nature* of the thing analysed, conditions of *what* it is, or, to use a Scholastic phrase, its conditions *essendi*. The whole method of philosophy may thus be summed up and characterised, as consisting in the determination of experience, under the three heads of conditions, *essendi, cognoscendi, existendi.*

In conclusion I must touch on a point which perhaps you may think I should have done better to begin with,—why the method which I have attempted to describe should be called the *metaphysical* method. I think I can now show you that the name is absolutely right, and exactly expresses what it ought to express, and implies what it ought to imply. In the first place, it is applied to the method which comes after the physical method, which is that of all positive science including psychology, counting from the original basis of all, which is ordinary knowledge, or knowledge in the form of common-sense. Science with its physical method comes next after that knowledge, and philosophy with its method comes next after scientific knowledge and completes it. This method is also the direct *opposite* of the physical, as I have shown above, and the name *metaphysical* includes and suggests this opposition.

Secondly, the name *Metaphysic* is applied, and has always been applied, to that inquiry which examines the nature of existence in the largest sense of the words,—*τὸ ὂν ᾗ ὂν, καὶ τὰ τούτῳ ὑπάρχοντα καθ' αὑτό.* Our present method examines this object-matter in the only way in which it can be examined, that is, subjectively, without any implication or assumption of *absolute* existence. *Metaphysic* therefore describes it better than *Ontology*, which by suggesting an opposition of Being to Knowing implies the assumption of Absolute existence. The kind of philosophy which I advocate is built upon experience, and upon experience alone, without the admixture of any *à priori* element, which I take to be a new step in the history of philosophy. But this does not weaken its title to be called *metaphysic*, since that name neither implies nor suggests the notion of *à priori* assumption.

Thirdly, by calling this method *metaphysical*, and that analytic branch of philosophy, which is constituted and demarcated by its application, *Metaphysic*, I mark the claim which I make on their behalf to be the most comprehensive and the same time the most thorough of all branches of intellectual pursuit or modes of knowledge. *Metaphysic* and *metaphysical* have always carried with them the implication of this *ultimate* character. They mark a kind of critical inquiry from which there is no appeal to any other intellectual tribunal. They mark the highest limit of human intelligence, where it is overshadowed and judged by the Divine. To call an inquiry like this by such a name as *Theory of Knowledge*—a name which assumes the distinction between Knowing and Being to have been already drawn,—would imply that the possibility of an Ontology beyond, on a basis of its own, was a question merely postponed for the present, and that the true method of philosophy as a whole had not been found. Whereas the name *Metaphysic* expresses a distinct claim to have discovered this true method, thereby reducing Ontology to rank as the Constructive Branch of a philosophy which consists essentially of subjective analysis, and embodies its results.

Lastly, I may say, that I chose the name *Metaphysic* in the first instance, because, appearing to me as it did the exactly appropriate one, it was treated, south of the Tweed at least, as a term of reproach and ridicule, following therein the fortunes of philosophy. It had become an object of unjust and ignorant contempt; and therefore to adopt it seemed to me a right and necessary challenge to superficial reasoners, though avoiding it would probably have secured a more favourable hearing.

IV.—GREEN'S METAPHYSICS OF KNOWLEDGE.

By Arthur James Balfour, M.P.

There is a manifest objection to reviewing in detail a fragment of any work, and the objection is specially strong when the work is one which develops through its whole course a continuous argument. The following paper therefore, which is exclusively devoted to the consideration of the first hundred pages or so of the late Professor Green's *Prolegomena to Ethics*, requires, by way of introduction, a few words both of apology and explanation. The apology rests partly on the circumstance that Green himself published the "Metaphysics of Knowledge" in a detached form (Mind XXV.-VII.), and that, *logically*, it does not suffer from being separated from its ethical sequel. It rests partly on the great interest which attaches, even in its isolation, to this section of his work. Of this interest the primary source is, no doubt, the force and originality with which the author has developed and enforced ideas which are not perhaps in the fullest sense, original. But it is also due in no small measure to what has always seemed to me a singular phenomenon in philosophic literature.

Every one who has given even a cursory attention to the progress of speculation in Britain during the last few years must be aware how important is the reaction against the systems of empirical metaphysics which in the hands of Mill, Mr. Bain, and Mr. Spencer, reigned supreme not long since. Of this reaction the most numerous and energetic promoters may be described without unfairness as belonging to one school. It is not meant of course that they can in any way be made responsible for each other's opinions, or that they do not differ profoundly even on points of great importance. What is maintained is that they have sufficient general resemblance in their modes of dealing with philosophic problems to make it not unjust to class them together in the same way as, without reproach, we are allowed to class together thinkers who differ so widely as Mill and Mr. Spencer. The members of this school are bound together by the common conviction that the solution of the larger problems of philosophy is to be sought along the path which was opened out by Kant, and further explored by Kant's German successors. It is true that the most Kantian of recent transcendentalists would probably never have been described by Kant himself as his disciples, and that the most Hegelian would, I suppose, accept very little without qualification of Hegel's positive contributions to the theory of the universe. Still, much as they differ among themselves, their mode of attacking the problems of philosophy is sufficiently similar to make it just, as it is undoubtedly convenient, to give them a common name; and no name is perhaps more appropriate than that of *Neo-Kantian*, which indicates both their connexion with and their difference from the philosopher to whom they most often appeal.

By this school many valuable contributions to metaphysical literature have been made during recent years. But they have, I believe, been all, or almost all, of one kind. They have been devoted exclusively to criticising or expounding the views of previous thinkers; never, until these *Prolegomena* appeared, to systematising the opinions of any members of the school themselves. These opinions had to be collected from such works as Green's Introduction to Hume, or Professor Caird's treatise on Kant; works from which, naturally enough, information respecting the philosophy of Hume and Kant could be more easily extracted, than information respecting the philosophy of Green and Caird.

The singular uniformity with which this rule has been observed causes especial interest to attach to the first important violation of it; and the interest is greatly strengthened by the fact that Green, to whom this fortunate innovation is due, is the individual who, perhaps more than any other, has contributed by his writings and by his personal influence to the spread of the new ideas. We can now for the first time contemplate in a connected whole the outlines of the Neo-Kantian scheme of metaphysics; and it is surely of the greatest importance to the interests of Philosophy that a serious effort should be made by those who are not as yet prepared to accept the scheme as it stands, to explain where their difficulties lie. The following pages are intended as a contribution to this object. They aim neither at estimating the genius of the author of the *Prolegomena*, nor at investigating the sources from which his system may be in part derived. I have throughout treated the "Metaphysics of Knowledge" critically not historically as a body of reasoned doctrines, logically self-sufficient and self-contained, the value of which has to be tested by argument and by argument alone. I am aware that the result of this may be to give a controversial tone to the succeeding comments which in the opinion of many may seem unnecessary and even, under the circumstances, misplaced. But, after all, it is only by controversy that an end can be put to a state of things in which it is possible for one school of thought tranquilly to pursue its way, not merely without understanding or answering the arguments of another school, but without apparently admitting that there is anything to be understood or answered. I do not of course suppose that I have been wholly successful in either understanding or answering: at least, however, I have tried; and the most unsuccessful attempt must prove of some value should it succeed in eliciting explanations or replies.

The most casual reader of the metaphysical portion of Green's book cannot fail to note the insistance with which one particular kind of argument is used whatever may be the subject with which at the moment he is specially concerned. Throughout the extended and minute criticism to which he subjected the philosophy of Locke, of Berkeley, and of Hume (in his Introduction to the works of the latter author) this argument is used critically; in the *Prolegomena to Ethics* it is used constructively. But whether used to destroy the systems of his predecessors or to support his own, the argument is so essentially one, not merely in substance but in form, that the author, wherever his book be opened and whatever be the conclusion he is desirous of establishing, always has the air of saying the same thing. Whether he be engaged in proving the existence of a universal spirit, or of individual intelligences, or of the relation of these to the material universe, or the reality of freedom, it is always to one particular analysis of the nature of knowledge that he appeals and on which in the main he rests his case: and he appears to have regarded it as his special mission in philosophy so to press this line of thought on the philosophic world that it could never again be forgotten or ignored.

The character of this argument and the general outline of Green's scheme, so far at least as is necessary to make the succeeding criticism intelligible, may perhaps be understood from the following summary.

Everything which is, or which can be, an object of thought is constituted by relations, *i.e.*, is made what it is by the relations of its parts to one another, and of its whole to other wholes, to the system of nature, and to the self-conscious Subject which distinguishes it as such an object from itself.

Unrelated sensations, so far from being "the real" or representing the real, are a "manifold" which can neither be perceived, thought of, nor intelligibly spoken about; are in short "nothing for us as thinking beings".

As objects are constituted by relations, so relations are produced by the activity of a self-conscious intelligence.

From these propositions it follows that the world of objects, the system of Nature, the context of experience, is produced by, and is dependent on, a self-conscious intelligence which, from the very fact that it is the condition of there being phenomena, cannot itself be a phenomenon, but must, as a "free cause," stand outside the universe of space and time which it constitutes an intelligible unity.

Since no one pretends that the universe is conterminous with the limited number of objects which he or his neighbours distinguish from their self-conscious selves, or is necessarily constituted by the relations under which he or they perceive it, it must follow that there is a single self-conscious intelligence to which the whole universe is relative, and of which all other self-conscious intelligences are a partial "mode" or "manifestation".

The metaphysical system, of which these propositions may be said in a general way to form the skeleton, is evidently a species of simplified Kantism; Kantism purged of "things-in-themselves" and denuded of the complicated architectonic structure with which its first author encumbered it. But while the avowed outcome of the *Critick of Pure Reason* was to show that a scientific knowledge of phenomena, but of phenomena alone, is possible, Green's "Metaphysics of Knowledge" professes to demonstrate the existence of individual self-conscious spirits outside the realm of phenomena altogether, and of one universal self-conscious spirit through which alone the world of phenomena exists, and of which all other intelligences are the imperfect manifestations. If his system is simpler than that of his master it is therefore much less negative in its speculative results.

Now it must be evident, I think, to anyone who has read the foregoing summary of Green's doctrine, and still more evident to anyone who has glanced at his writings, that the whole fabric of his philosophy rests on his theory of relations; and that his theory of relations consists mainly of these two propositions: first, that objects are constituted by relations; secondly, that relations are the work of the mind. In defence of the first of these assertions Green chiefly concerns himself with refuting what he conceived to be the alternative theory, that, namely, according to which the reality of objects consists in, or at least is represented by, unrelated simple sensations. With this theory, which Green attributes to Locke and to the whole empirical school whose philosophical pedigree may be traced to Locke, I have nothing to do. Those who hold it may be left to defend it. But in Green's own view there appears to be a difficulty which he has himself pointed out (pp. 45 ff.) with his usual force and fairness, but of which the statement appears to me to be more successful than the reply. The difficulty is this. If the world of experience consists solely of relations, what are these relations between? Let it be conceded for the sake of argument that however far we carry back the analysis of what constitutes an object, we still find ourselves dealing with relations; are we not still compelled to believe that there cannot be relations unless something other than relations exists to be related, even though this "something" (apart from its relations) is "nothing for us as thinking beings"? And if this be so, does the transcendental theory, in Green's hands, save us after all from the philosophic dualism of which he is so much afraid?

This objection Green attempts to meet, if I understand him rightly, by showing that simple sensations, unqualified by thought, are an unmeaning abstraction, have no place in the world of experience, and cannot therefore, since in truth they are *nothing*, be the original cause or matter of *anything*. This may be true, but it does not really meet the point. In the first place, there is no need for us to suppose, as Green seems to think we must suppose, that this "not-thought" is simple sensation. In the second place, we are not obliged to imagine that by itself and apart from relations it is a possible object of experience. He does not perceive that it is possible to regard the "matter" of thought as necessary without also regarding it as independent. And therefore while he repeats with unwearied iteration that relations are necessary to turn sensations into facts, he seems to consider this a reason for ignoring the correlative and not less obvious truth that sensations, or, if not sensations, material of some kind, are necessary in order that relations may have something to relate. The analogy of symmetry would therefore seem to suggest a dualistic addition to Green's theory. On that theory, as we have seen, the world of experience consists of related objects and of these alone, and as it assumes the existence of a single spiritual principle, which is the source of all relation, so it would seem but natural to suppose the existence of a non-spiritual principle which should be the source of that between which the relations are. If it be objected to this that the supposed non-spiritual principle is not an object of possible experience, I reply that neither, on Green's own theory, is the universal spiritual principle an object of possible experience. If I be asked why we should thus suppose the existence of that which is not an object of possible experience, I reply, as Green replies (p. 54) in respect of the spiritual principle, that "its existence is implied in the existence of the world". In short, if that which is related is, apart from its relations, an unthinkable and therefore non-existent abstraction, not less unthinkable and therefore equally non-existent must be relations apart from that which is related; and if relations require a source, so must that which relations qualify.

I am unable therefore to agree with the modern exponents of the Kantian philosophy who see in Kant's doctrine of 'Things-in-themselves' the results of inveterate prejudice, a mere survival of a mode of thought which Kant himself supplied the means of destroying. Holding, as he did, that the 'Pure Ego'—which for the purpose of the present argument may be identified with the Spiritual Principle of his English followers—is the source of relations (categories) and of these alone, he seems to me more logical than they in seeking elsewhere a source for that element in the knowable which does not consist in relations. And if (which I am far from denying) his doctrine be open to the objection made against it by Green (p. 44) and others, namely, that in asserting things-in-themselves to be the *cause* of phenomena, Kant was employing a category to explain the world of experience which could only be legitimately used within that world; Kant might retort that whether true or not, it scarcely lies with his Neo-Kantian critics to make the charge. For if Green's canon as to the limits within which the categories may be applied permits him to say that "nature results from the activity of the spiritual principle," it surely cannot be very seriously violated by Kant's assertion that nature is in part caused by the action of 'things-in-themselves'.

These observations naturally bring us to the consideration of the *second* principle of Green's theory of relation, namely, that relations, and therefore a world which consists of relations, are the work of self-conscious intelligence. Now it must be noted that this principle involves two propositions, the first of which is that relations *exist only for* a self-conscious intelligence, the second of which is that relations *are due to the activity of* a self-conscious intelligence; and of these two propositions, while the second can hardly be held without the first, the first may well be held without the second. The second, however, though not treated separately by Green, is an essential part of his system. The active, productive, creative character of mind is too often and too earnestly dwelt on by him to leave any doubt as to the importance which he attributed to it. On it, as it relates to the universal spiritual principle, depends his Theology; on it, as it relates to individual intelligences, depends his theory of the Freedom of the Will, and through this the whole scheme of his Ethics. In considering the proof therefore which he gives of Intellectual Idealism, this side of his doctrine must not be lost sight of.

Considering how fundamental a portion of his system this doctrine is, it certainly seems to me to have been treated by the author with less fulness than its importance, and with less clearness than its difficulty, renders desirable. The official proof, which will be found in chap. i., §§ 26-9 of the *Prolegomena*, may be summarised as follows.

> It being granted that the world of experience consists in "a single, all inclusive system of relations," the question remains "what is the condition of its possibility?" "What is implied in there being such a world?" Now "relation involves the existence of many in one". One thing is only one thing because it involves many relations, one relation is only one relation in so far as it is between manifold things. "But a plurality of things cannot of themselves unite in one relation, nor can a single thing of itself bring itself into a multitude of relations." . . . "There must, then, be something other than the manifold things themselves which combine them without effacing their severalty. . . . With such a combining agency we are familiar as our intelligence." A relation of successions, for instance, between two sensations is only possible if on the one hand they are united, and if on the other hand the distinct being of each is maintained. "But if it were not for the action of something which is not either of them or both together, there would be no alternative between their separateness and their fusion," and "the same or an analogous action is necessary to account for any relation whatever". Hence the world of relations, if it is to be real for us, must be the "product of our combining intelligence"; and "if it is to be real otherwise than merely for us," it must be "the product of some unifying principle analogous to that of our understanding".

Now whether Intellectual Idealism be true or not there seems to be the gravest objection to this mode of establishing it. Related objects must be, it appears, at the same time both many and one. Left to themselves, however, and without the assistance of some "combining agency," they would be condemned either to be united in a "featureless identity," or separated in a rigid isolation. The one never would become many, nor the many one. If we are to avoid such a consummation a "combining agency" of some kind has therefore to be found, and as none presents itself adequate to the task except intelligence, by intelligence it must be accomplished. There certainly appears to me to be something eminently unsatisfactory in this method of procedure. The philosopher is made to look about for something which is involved in the existence of a connected system of nature, much as a geologist looks about for what is involved in the existence of an ancient moraine. And as the geologist assumes a glacier as the only thing which renders a moraine possible, so the philosopher assumes a "combining principle" as the only thing which renders a world of experience possible. But in so doing is he not employing a method of investigation, useful and legitimate within the sphere of science, but wholly inapplicable to the elucidation of a problem in metaphysics? How can he tell what nature would be without mind? How does he know that it would be a "manifold," incapable by itself of bringing itself into a unity, without at the same time being lost in a "featureless identity"? How again is it possible to say that this is a task which mind can perform, unless we can observe the action of mind on a "manifold" in the same way that a chemist observes the action of an acid on a metal, *viz.*, by first seeing them separate and then seeing them together? Yet is not this an operation which we are told even more emphatically by the transcendental system than by any other is impossible? The analysis of experience on which that system is based, professes to show, positively, of what elements the knowable consists, and, negatively, that as these elements cannot exist apart, one of them cannot be the cause of the other. It shows, for instance, or professes to show that, as the phenomena of the material and organic world are nothing except in so far as they exist for a self-conscious mind, a self-conscious mind cannot be their product. To this reasoning I am not concerned to raise any objection. But is not the very principle on which it rests violated by the attempt to draw a distinction between these necessary elements in knowledge; a distinction according to which one is to be regarded as active, the other as passive, one as real *really*, the other as real only relatively (p. 104)? If mind and nature form one inseparable whole, if they cannot be put asunder without at once becoming meaningless abstractions, then one cannot be before or after the other, and it becomes in the highest degree inappropriate to describe the indivisible whole as specially the product of either of its essential members. Or, if we do so describe it, we must allow that it is as correct to say that nature makes mind as that mind makes nature; that the World created God as that God created the World. The truth is that "the analysis of the conditions which make experience possible" (p. 18) is an operation for which more magnificent results are claimed than it can always legitimately produce. The analysis of a material object consists in breaking it up into those other material objects which are its elements, and it is only when we know something of the properties of these elements as they exist separately that we regard our analysis of the whole as satisfactory. But the transcendental "analysis of the conditions which make experience possible" may tell us what elements are necessary to constitute experience, but never can tell us anything about them apart from the experience which they constitute; and for this plain reason that apart from experience neither they nor experience are anything.

It may perhaps be said in answer to these observations that I am wasting time in refuting a theory which after all Green has himself expressly repudiated. And this is in a sense unquestionably true: for on pp. 56, 57 of the *Prolegomena* we are given fair warning that, if the author uses language to express the relationship of the spiritual principle to nature which "strictly taken" implies that this relationship is that of a cause to its effect or of a substance to its accidents, it must be "on the clear understanding that this language is of a metaphorical character". This disclaimer certainly appears to be sufficiently explicit, yet the more it is examined the more difficult does it seem properly to interpret it. In the first place it is purely negative. It tells us what Green does not mean when he uses certain language; it wholly fails to explain what it is that he does mean. Yet this is after all the important point. Philosophy is not poetry; it cannot be content to use language which makes no nearer approach to a meaning than that of vague suggestiveness. It cannot be permitted, like mathematics, to introduce into its reasonings expressions incapable of interpretation; and if it uses metaphor at all it must be as an occasional luxury, not as its daily bread. Yet I think that every candid reader of the *Prolegomena* will admit that this ascription of causal or quasi-causal activity to the self-conscious intelligence is no mere rhetorical figure but is ingrained in the very substance of Green's system. I take as specimens two short extracts in addition to those I have already given, from among scores which might be quoted.

> "We have followed him (Kant), as we believe every one must who has once faced the question, in maintaining that a single active self-conscious principle, by whatever name it be called, is necessary to constitute a world of experience, as the condition under which alone phenomena, *i.e.*, appearance to consciousness, can be related to each other in a single universe. This is the irrefragable truth involved in the proposition that the understanding makes nature."[1]

And again:—

> "The difficulty of saying what this all-uniting self-seeking self-realising subject is, arises from its being the only thing, or a form of the only thing,

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[1] P. 40.

that is real in its own right; the only thing of which the reality is not relative and derived."[1]

These utterances "strictly interpreted" mean and can only mean that the world is the creation of an active intelligence:—I do not say of course that it is posterior to this active intelligence in *time*, for there is, on Green's theory, no time-relation at all between the two. But though we are required to hold that the world of experience is neither after mind, nor before mind, nor (I suppose) simultaneous with mind, we are also expected to believe that it is "made" by mind, that it is "constituted" by mind, that it is passive while mind is "active," that its reality is derived from mind, while the reality of mind is not derived from it. This relationship may not be the same as that which, in the world of phenomena, obtains between a cause and its effect. In fact as time-relations are altogether excluded it cannot be. But unless the language of the *Prolegomena* is not only metaphorical but meaningless, unless "action" is the same as passion, unless "to constitute" is the same as "to be constituted," unless Neo-Kantism is after all a dualistic and not a monistic system, it certainly appears to me that Green's theory, notwithstanding his explicit disclaimer, is open to the objection I have ventured to urge against it.

So far I have been considering (1) how it is possible to prove on Green's method that nature consists of relations, and (2) how far it is possible to prove that relations are the "work of the mind". We now come to a third problem or group of problems involving subjects of even greater subtlety and complexity than those which have already been touched on, and which are rendered specially difficult to treat satisfactorily from the circumstance that questions which are really separate are not always discussed separately by the author.

Conceding then, for the sake of argument, the general position that the contents of experience are the product of self-conscious intellect, what grounds have we for assuming the existence of any such self-conscious intellect besides that one which every man is conscious of within himself, and, if we may assume its existence, what is its nature and in what relation does it stand to each one of ourselves. Or to put the questions in a form somewhat less general but more suited to our present purpose—by what right may we assert the existence of a Universal Spiritual Principle, and how are we related to it?

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[1] P. 104; *cf.* also § 63, p. 68.

The main argument by which Green answers the *first* of these questions I have already briefly stated. It may be expanded somewhat as follows.

> Mind makes nature; but if it was my mind or your mind that so made it, nature would exist only so far as you or I understood it. It would come into being with our life, it would perish with our death, it would vary with our knowledge, it would be limited with our limitation. But nature is not so limited nor are the relations which constitute it thus variable. They form a "single unalterable all-inclusive system," and as such they imply the existence of a "principle of unity in relation," which cannot be other than universal spirit.

The first question which this argument suggests to the sceptical critic is—how do we arrive at the fact of there being such a system of nature as is here described? By hypothesis it cannot be known immediately, because it is owing to our *not* knowing it immediately—to its *not* existing in its completeness in our own consciousness—that we have to assume a consciousness in which it does so exist. If then we do not know this all-inclusive system immediately, on what evidence and by what process of inference do we arrive at it? This question, natural though it may seem, is for some reason, the character of which I do not venture to conjecture, commonly treated by the Neo-Kantians with a certain measure of impatience. Green has treated it not indeed with impatience, but with a brevity which, from the reader's point of view, is much to be regretted. His observations on it are as follows (p. 30).

> "It would no doubt still be open to the sceptic to suggest that the validity of our conclusion depends upon there really being such an order of nature as the quest of knowledge supposes there to be, which remains unproven. But as the sceptic, in order to give his language a meaning, must necessarily make the same supposition—as he can give no meaning to reality but the one explained—his suggestion that there really may not be such an order of nature is one that conveys nothing at all."

If this answer be accepted at all, it must certainly be accepted as adequate. No reply can be required to a question which has no meaning. But can this be seriously maintained? Is it the case that reality only means and can only mean "determined by a single unalterable order of relations" (p. 17), and that therefore to enquire whether such a single unalterable order of relations *really* exists is nonsense?

It appears to me that in this matter Green has been led into error by confounding the habitual practice with an inevitable necessity of thought. It is most undoubtedly true that we regard nature as consisting of a uniform system, and that when we say that a phenomenon is real we mean that it *is*, just as when we say that it is illusion we mean that it is *not*, determined by those relations in this uniform system which appear to us to determine it. But this way of looking at things, though habitual and, indeed, practically inevitable, is not speculatively necessary. Other views of the "world of experience" might be held without self-contradiction. We might suppose, for instance, that there was an objective system of nature (*e.g.*, in Green's language, a system constituted by a world-consciousness of which ours is a limited mode) which should not be uniform, or not uniform in any sense required by science; and in which all the relations might not only be variable but might vary arbitrarily. Again, we might suppose that there was no objective system of nature at all: that ours was the sole consciousness in existence, and that there was no world other than that which was constituted by the successive phenomena which that consciousness comprehends. These suppositions, if true, would doubtless render science impossible. But since, so far as appears, they are neither self-destructive nor, properly speaking, incredible, it cannot be legitimate to build up a speculative system upon the mere assumption of their falsity. Let us grant however that, as there is a world of experience, there must therefore be a world-spirit to which it is relative; and let us proceed to consider what is, I think, the most difficult part of Green's doctrine—I mean his views of the nature of consciousness in general and of the relationship of the universal consciousness to our own.

His exposition is in some respects obscure, and not always verbally consistent; but it may I believe be summarised without substantial injustice somewhat as follows.

> Knowledge, *i.e.*, the "content of a knowing consciousness," is of a "related whole". The members of this related whole, the elements in other words, which collectively make up the things known, are all "necessarily present together" (p. 61), "neither before nor after one another" (p. 61), "without any lapse of time however minute" between them (p. 62), to the self-distinguishing consciousness from whose "action" they "result" (p. 68). This is so, whether what is known be a uniformity of nature or a succession between events. Hence the knowing subject, itself free from time-conditions, is an "agent for the neutralisation" of time (p. 71); hence also knowledge, *i.e.*, the content of a knowing consciousness (as, for instance, a proposition of Euclid *quâ* known), cannot be properly described as a phenomenon; and though its acquisition or its loss may be events, in itself it is not an event. These are characteristics of knowing consciousness in general. But *our* consciousness has in addition the apparently (p. 72) contradictory attribute of a history in time. "It seems to vary from moment to moment." It apprehends processes of becoming in a manner

which implies that past stages of the "becoming are present to it as known facts; yet is it not itself coming to be what it has not been? It will be found that this apparent state of the case can only be explained by supposing that in the growth of experience, in the process of our learning to know the world, an animal organism, which has its history in time, gradually becomes the vehicle of an eternally complete consciousness. What we call our mental history is not a history of this consciousness, which in itself can have no history, but a history of the process by which the animal organism becomes its vehicle." It must not be supposed however that, because we have a consciousness which, since it apprehends succession in time, is itself out of time, and also a consciousness which "varies from moment to moment, which is in succession, and of which each successive state depends on a series of 'external' and 'internal' events," therefore we have a double consciousness. On the contrary, we possess but a single consciousness:[1] "only in seeking to understand its reality we have to look at it from two different points of view; and the different conceptions that we form of it, as looked at from these different points of view, do not admit of being united, any more than do our impressions of opposite sides of the same shield".

Such is Green's solution of the problem which has to be dealt with by every system which distinguishes between the "pure" and the "empirical" Ego, the universal reason which is not in time and the individual consciousness which has a history. The difficulties which beset this solution are, however, not fully apparent either in Green's exposition or in my abstract of it. For it requires us to believe that to *learn* is an event, to *forget* is an event, to *know* is not an event; that knowledge therefore, though its beginning is in time, and though its ending is in time, is itself not in time. It requires us further to hold that the universal consciousness, which is not in time and which has no history, yet carries on a gradual process of self-manifestation which is in time and which has a history. In other words, that that which is timeless and immutable is at different times at different stages of development. And lastly it calls upon us to accept two contradictory accounts of our own consciousness, with no more satisfactory attempt at their reconciliation than that which is provided by the assurance that only by holding them together can we form an adequate account of the truth as seen from two different points of view.

Before, however, we accept doctrines which, whether true or not, in their form appear rather to resemble theological mysteries than philosophical conclusions, let us examine a little more closely the reasoning on which they are based. The natural, indeed the only, foundation on which we can rest any theory about consciousness in general is of course an analysis of our own consciousness in particular; and it is this analysis which, in Green's hands, yields the first of the above paradoxes, namely, that *to begin to know* is an event or phenomenon, *to know* is not. This timeless character of knowledge is proved by an examination of "the content of a knowing consciousness". If we consider such a content, as, for example, a proposition of Euclid, we no doubt find, as Green points out, that the system of relations of which it consists is in a sense independent of time. It is the same at one period as at another, nor is there any succession between its parts. And this is no doubt equally true when the "content of the knowing consciousness" is a relation of succession in time. The content for example of a consciousness which knows that George IV. succeeded George III. does not consist of two successive acts of apprehension, but in the single apprehension of two successive events. But though this be so, yet surely it is only by that very process of "illegitimate abstraction" which in other connexions the Neo-Kantians so energetically denounce, that we can draw from such premisses the desired conclusion. Separate the relations known from the knowing subject, the content of consciousness from consciousness itself, and knowledge may seem independent of time. But if we refuse thus to separate verbally what can never be separated really, it immediately becomes plain that knowing is as much an event in the history of mind as learning or as forgetting. Though we may say, if we please, with the Idealists, that everything which exists, exists only so far as it is known, yet is it necessary to add that, if other minds resemble ours, everything which is known is known by a particular consciousness at a particular time. The language of Green himself is a witness to the impossibility of excluding time from any account of knowledge as a concrete fact. For when he assures us that the elements of the thing known are "necessarily present together," are "neither before nor after one another," are not separated by "any lapse of time, however minute," what is he doing but telling us that they are all apprehended by the same knowing subject at the same time? And how can the knowing subject apprehend things at the same time, unless it apprehends them at some particular time? And how can that which it does at some particular time be other than an event in its history?

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[1] Here and elsewhere Green causes much difficulty to the reader by not distinguishing accurately between a physical phenomenon and its physical or physiological condition. He tells us (p. 72), that "the consciousness which varies from moment to moment . . . consists in . . . successive modifications of the animal organism". Of course he cannot mean this. The crudest school of materialism would scarcely accept it. I have therefore refrained in the text from crediting him with the doctrine.

If I might hazard a conjecture, I should say that Green was misled in this matter by an error similar to that which mars his theory of reality. As in dealing with that subject he seems to have supposed that all those who did not hold with him the opinion that reality consists in relations, necessarily accepted Locke's theory that reality consists in simple sensation; so in dealing with the nature of the conscious self he seems to have thought that the only alternative to his view that mind is a unifying principle not in time, is Hume's theory that mind is nothing more than a stream of mental phenomena.

> "We thus avoid," he says (p. 63), "the necessity of facing the question how an object determined by relation can have its being *in a consciousness which consists of a series of occurrences.* Even 'knowledge,' though we often mean by it a system of known facts or laws, is apt to lose this sense when we speak of it as a form of consciousness. It then becomes merely the mental event of arriving at an apprehension of related facts. It does not represent the relation of the facts in consciousness. That there must be such a relation of them in consciousness, and *that a consciousness consisting of events cannot contain such a relation*, is a conclusion which we avoid by eviscerating knowledge of its content and transferring this content from consciousness to 'external things'."

Let it be observed in passing that, however absurd may be the view that consciousness, *i.e.*, a conscious self, consists of events, the reasoning by which in this passage it is refuted, though common enough in transcendental writings, is open to grave suspicion. It is surely dangerous to talk of that transcendental "combining agency"—the self—as an inventor talks of a machine: 'constructed in this way it cannot perform this;—constructed in the other way it may perform that'. Reasoning of this kind presupposes a general knowledge of mechanics applied to the criticism of a particular machine. But we have no such general knowledge of the mechanics of consciousness. We know perhaps something about our own, what it is and how it acts. But we cannot infer from this how a consciousness of an entirely different kind would act; we cannot make a working model of it; we cannot even in the vaguest manner imagine what it would be like. Though it may therefore be correct to say that, since "a consciousness consisting of events" is a meaningless expression, no assertion about it can be significant, it cannot be correct to suggest, as Green certainly does suggest, that by contemplating the structure of this hypothetical consciousness we can *a priori* discern its incapacity for knowledge. By direct intuition we may assure ourselves that we are something more than a succession of mental phenomena; it is superfluous therefore, even if it be possible, to deduce from a general theorem respecting an inconceivable form of consciousness a particular truth respecting our own consciousness, from which this general theorem, if it has any meaning at all, must itself be an inference. Passing by this question of method, however, let us ask whether Green is right in assuming that if the knowing subject is not a stream or procession of thoughts it must, as the only alternative, be out of time and therefore without a history. That this view leads to great difficulties, that it obliges us to hold two views of consciousness which Green admits cannot be united, and which are perhaps more accurately described as in flat contradiction, we have already seen. That the analysis of the "content of the knowing consciousness" gives no countenance to it I have attempted to show. Is it not also true that ordinary reflection suggests a view which, if not without its difficulties, is free from many of those which beset the theories we have been considering? Most persons unbiassed by system would, I suppose, agree with Green in thinking that we are something other than a mere pageant of passing thoughts and emotions. But they would differ from him in holding that this "something more," this self, persists through these unceasing changes, has a history and is in time.

Consciousness which thus testifies against Green's account of what it is in itself, testifies even more clearly against his theory of what it is in relation to the Eternal consciousness. This relation is, as we have seen, described as that of a "mode" or "manifestation". Now, whatever be the full meaning, in this connexion, of these terms, they must at all events signify that the thing which is a mode and manifestation is in some way a part of, and is so far identified with, that of which it is a mode and manifestation. But this identification of the finite with the eternal consciousness, though it may doubtless have profound significance in the region of religious aspiration, has, I venture to think, no legitimate place in transcendental philosophy. The very foundation of Green's version of the Critical system is that in every act of knowledge the "I" distinguishes itself from what it knows. How then can it know itself as identical with another consciousness, so long as it can know anything about this other consciousness only on condition of its knowing itself as distinct from it? If this be not so, what becomes of the argument by which the doctrine that consciousness does not consist of changing phenomena is deduced from the fact of our necessary self-distinction from these changing phenomena (see *e.g.*, p. 56)? If we can be identical wholly or partially with that from which in knowledge we necessarily distinguish ourselves, then we may be after all a series of mental phenomena. If we cannot be identical with that from which we thus distinguish ourselves, then we cannot be a mode of the eternal consciousness. In the first case we must give up our author's theory of nature, in the second his theory of God.

It seems probable that both the opinions I am combating, namely the opinion that consciousness in not in time, and the opinion that our consciousness is a mode of the eternal consciousness, arise from the too abstract theory of the "Ego", which Green held, or at all events occasionally suggests to his reader. On page 72 he asserts that we "only" know the eternal consciousness as "a principle of unity in relation". It seems natural to argue from this that, in proportion as this eternal consciousness succeeds in reproducing itself in us, we also approach the condition of being mere "principles of unity"; and that if any one of us reach the stage of being a "completed consciousness" he would then be a principle of unity and nothing more. If this was his opinion it is not difficult to see how he arrived at the further view that we are, *quâ* knowing, both out of time and also a mode or manifestation of the eternal consciousness. For it may be admitted, in the first place, that what is only "a principle of unity" can have no history, and, being a mere logical or metaphysical abstraction, is abstracted, among other things, from the notion of time. It may be admitted, in the second place, that two "principles of unity" can hardly be distinguished except by differences in that which they have unified, *i.e.*, in their thoughts. And it may be admitted, in the third place, that thoughts which are not in time, and which have the same content, must be regarded not only as familiar but, for want of any principle of distinction between them, as absolutely identical. In so far therefore as our thoughts are true and thus the same as those of the universal consciousness, we may no doubt be described as its mode or manifestation, and could we become a "completed consciousnesses," *i.e.*, could the "content of our knowing consciousness" be precisely assimilated to that of the universal consciousness, then all difference between it and us would be totally obliterated. But such a theory as this is in truth (as I have just said of a cognate error) the result of illegitimate abstraction. We are essentially more than mere "principles of unity". Consciousness is something besides the bare geometrical point through which must pass all the threads which make up the web of nature. And this *something*, though to each man unique, and therefore incapable of description, is that "self" whose being can never be in any degree shared with, or merged in, the personality of another. We are who we are, and only who we are; and shall be thus isolated and self-centred so long as we are at all. To assert that the opposite doctrine, which has been a cardinal dogma of vast systems of religion and philosophy, which sages have taught and nations accepted, is unintelligible and unthinkable, would be presumptuous. But I may be permitted to conjecture that, if half the metaphysical ingenuity which has been expended on its defence had been used for the purpose of presenting it to the judgment of consciousness in its simplest and clearest form, it would have seemed to others, as it certainly seems to me, intrinsically and immediately incredible. It may be added that an eternal consciousness of which all that we know is summed up in the proposition that it is a "principle of unity," can never be a fitting object of love, reverence, or indeed of any emotion whatever but philosophical curiosity; and if our fellow-men excite in us any warmer feeling than this, it must be because they differ from, not because they resemble, that universal reason of which, according to Green, they are, though partially and inadequately, the manifestations.

There is yet another difficulty suggested by Green's views respecting the eternal consciousness of which, on his own principles, I do not clearly see the solution. In his theory of knowledge it is, as we have seen, a cardinal principle that everything which is known is constituted by the relations with which the knowing subject qualifies it. Apart from such qualification it is nothing for us as thinking beings: and if nothing for us as thinking beings, then nothing absolutely. Now in order that we may say anything intelligently about the eternal consciousness it is clearly necessary that it shall first be an object of knowledge; and as such, must, like other objects of knowledge, be constituted by relations. If this be so we are forced to adopt one of two conclusions. Either the eternal consciousness exists as part of that related content of experience which is unified by consciousness; or it exists otherwise than it can be known. In the first case we must, it would seem, abandon the transcendental metaphysics of being, in the second, the transcendental metaphysics of knowledge. To this it may perhaps be replied that, though doubtless the eternal consciousness can only be known by us as "object" and therefore as other than it is, it necessarily knows itself as subject, and therefore as it is, thus differing from a "thing-in-itself" which is unknowable on any terms. But this does not really meet the objection. The point of that objection lies in the fact that we cannot intelligently say that the eternal reason knows itself, since it is impossible that the eternal reason, as defined, should be anything for us as thinking beings, and we can say therefore nothing intelligently concerning it at all. That is not known which is not in consciousness. That cannot be known which cannot be brought into consciousness. Thus things-in-themselves cannot be known because they can only come into consciousness on condition of ceasing to be "things-in-themselves". Thus also the eternal "subject" cannot be known because it can only come into consciousness on condition of being an object. To say therefore that I have any knowledge, direct or indirect, either of things-in-themselves or of the eternal consciousness is something like a contradiction in terms. The nature which in words we ascribe to them is one with which the essential constitution of our knowing faculties makes it impossible we should ever become acquainted.

With this criticism, which, if valid at all, is manifestly capable of very wide extension, I close this brief survey of the argumentative basis on which rests the Neo-Kantian system as it was conceived by Green. Let me conclude this article by taking note of the singular resemblance which this system itself, in its general outlines, bears to that of a philosopher to whom its author would certainly have conceived himself to be in no way specially indebted. Kant, as the reader knows, is the philosophical progenitor to whom Green would in the main trace the leading characteristics of his theory; yet strangely enough it is Berkeley's general conception of the universe to which, by a kind of *atavism*, Green's bears the strongest resemblance. The technical language in which the two thinkers express themselves is so different, the points from which they attack philosophical problems are so widely separate, their dialectic is so utterly unlike, that we may easily be tempted to forget how nearly similar are the results at which they finally arrive. Berkeley by an examination of the nature of perception, Green by a criticism of the conditions of experience, alike reach the conviction that the world of objects exists only for mind; both deduce from this the reality of freedom; both assume the existence of a universal spirit in order that their idealised universe may be something more than the phantasm of the individual consciousness; with both this assumption develops into something which resembles, though it never actually becomes, a species of Pantheism. Yet it happens strangely enough that, with all this agreement in the substance of their creed, Berkeley is the philosopher whom Green has treated with least sympathy. He never forgot that Berkeley was a sensational, while he was an intellectual idealist; and this single difference obscures his perception of, or at least destroyed his interest in, their many points of likeness. Moreover he never quite forgave Berkeley for philosophising (as he said) with a theological object; not perhaps sufficiently consider- that he might himself be accused, with not less justice, of philosophising with an ethical object. Both accusations are true, and neither is discreditable. Speculation, dealing as it must with subjects so vast and yet so near to us as religion, science and morality, can rarely be pursued by perfectly colourless intellects; and could not in all probability be pursued by them with any exceptional success. We are human beings and not investigating machines. But though this be so, or rather because this is so, we are specially bound to examine with anxious and impartial care every system with whose conclusions we are in general sympathy; and if the reader has been tempted to think that in the preceding pages I have not sufficiently dwelt on the broader aspects of the *Prolegomena*, that I have seemed too little aware of the subtlety and suggestiveness of its metaphysics, or of the moral fervour which in so strange and attractive a manner pervades even the most scholastic reasoning of its ethics, I ask him to believe that this arises from no lack of appreciation on my part. I go further and say that, though I demur to their being regarded as portions of a reasoned philosophic system, I do not refuse to accept in their most general sense, and with some qualifications, the conclusions on which Green insists. It is not therefore with the desire of shaking these that I have been occupied with a technical discussion of the technical arguments by which they are sustained: it is rather in the belief that the sole hope of our being able in the first place to discover a reasoned theory of the universe, and in the second place to agree about it when it is discovered, lies in the mutual criticism of all who are anxious for the progress of speculation. So wide are the differences which separate opposing schools that much of such criticism must necessarily be irrelevant through want of mutual comprehension; but even when it is irrelevant it is not necessarily useless. We may not unreasonably suppose that where there is much misapprehension there may be some obscurity, and that when the precise character of this obscurity is thus made known by its consequences, it may in part, at least, be found capable of removal.

V.—RESEARCH AND DISCUSSION.

BILATERAL ASYMMETRY OF FUNCTION.

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I.

The problem of the relation of right- and left-sidedness to the more general law of bilateral symmetry has not yet been studied with the method or comprehensiveness which it requires and which is now possible. The vast clinical, physiological, popular, and historical literature upon the subject (of which we are preparing a bibliography), presents so much interesting material that before recounting our own studies, we must first briefly resume some of the more important results now claimed.

It has been said, on a basis of more or less careful and averaged measurements or other observations, that the right and left eyes often have slightly different near and far points and different powers of accommodation and discrimination, both of form and colour; that the bulbi have different degrees of rotary mobility and the pupils unlike apertures; that it makes a difference in apparent projection-distance whether an object be seen with the right or left eye, so that we ought not to say identical points with reference to an object, but coincident points, as if the retinæ were laid one within the other like two cups; that if we point at an object with both eyes open we shall find, on closing each eye alternately, that we have instinctively pointed in the line of the right eye, or *vice versâ*, if we are left-handed; that the outer angle which a vertical makes with a horizontal line in monocular vision seems greater by about half a degree for the left than for the right eye; that the error in putting the finger through a ring is greater when the right than when the left eye is closed, so that a true, mean, cyclopean eye would be slightly to the right of the median line; that in short the right eye is commonly the best for microscopic or macroscopic work, and is less liable to many forms of disease and congenital defects. And yet, though an expert stereoscopist does not usually mistake patterns a part of which is presented to each eye for those that are monocular (with only a *tabula rasa* before the other), the two eyes are of course so intimately connected that they probably act from one root and practically as one organ, and only disease or artifice can make their axes diverge or move asymmetrically up or down. Their motor seem regulated by their retinal functions, so that, according to Ludwig, if the retinæ are extirpated, the eyes often cease to rotate, then to accommodate, then to wink together. If one eye be covered, the other pupil expands to nearly twice its former size, or else the room grows dark; if a bright image be impressed on one eye, and then it be closed and the other opened under suitable conditions, the after-image sometimes appears in normal projection. The comparative reaction-time for each eye; the physiology of reading mirror-script, or writing after the early Greek fashion, alternately right and left; which eye is most often and soonest affected in the disparate moments of drunkenness and in strabismus; whether lateral hemiopia is more common or complete on the right or left; in which direction rotation soonest produces optical dizziness; the number of fibres crossing each way in the optic chiasma;—these and many other points, including the ontogenetic and phylogenetic growth of the visual function generally from its dawn in animal life, must, we think, be much better understood before we can accept even Helmholtz's conclusion as to whether or how far it is a psychic act to join the activities of the two retinæ, or explain the hypnotic colour-blindness or accommodation-cramp of one eye, the other remaining normal, or the binocular functions generally; and even then, we are convinced, the entire problem of bilateral symmetry and function of the other double organs of the body must be brought into relation with them before such questions as these can be cleared up. Each must shed light on all, and all on each, and the study must be made comparative, to include the lower animals.

The other senses offer less data. It has, however, been stated that the left helix is apt to be less perfectly developed, lower, more prominent, further from the eye; that the left ear has less auditory power and greater liability to certain diseases; that in conflicting or contrasting sounds, the impression made on the right auditory nerve is more likely to prevail; and that one ear sometimes hears the same tone higher than the other. Even taste and smell, according to Valentin, present phenomena analogous to rivalry between their two lateral moieties when different tastes or odours are simultaneously applied to each; but there was no differentiation, no record of preference for right or left.

Of the dermal and muscular senses, there are many illustrations of the Shakespearean line, that "The hand of little employment hath the daintier sense". Weber observed that things lifted with the left hand seemed heavier, and that sensory discriminations (especially tactile, but perhaps not thermal, we should say) were finer on the left side of the body, which Wundt and others have spoken of as passive and sensory, while the right is called the active motor side. If a plate of metal, or a mustard plaster, be laid on the insensible side of an hysterical hemianæsthesic subject, sensibility is more or less completely restored in a few minutes, and often for many hours, at the point of applications, but simultaneously reduced or lost on the corresponding point of the sound side. Analogous restorations were observed by the Burq-Charcot commission of the French Biological Society in 1878, in the field of each of the other senses, on the application of metals. The phenomena of transfer, designated by Adamkiewicz a "bilateral function," like sweat-secretion, though quite often complicated with simulation and lasting sometimes for many hours, is, in a sense, the reverse of the familiar increase of discriminative sensibility on the corresponding part of the other half of the body during psycho-physical observations.

The most familiar asymmetry in both form and function is in the hands and arms. One man in from about twenty to forty, according to various enumerations, is left-handed. Ogle found that fifty-seven men and twenty-eight women in one thousand were left-handed, and cases of true ambidexterity are very rare, as tools, machines, and many occupations and specialisations of man, unlike those of woman, often make it practically impossible. The difference is very manifest in the shoulders and chest, while the right arm is often nearly a third of an inch longer, displaces several cubic inches more of water when immersed in a tube up to a given point, as we have observed, and is sometimes one-third stronger, so that the deflections of the needle caused by muscular effort is greater on this side. The weight of the arms is so important in correcting the oscillations of the centre of gravity in walking that, if one be lost, a runner needs another of the same weight. This inequality alone brings this centre somewhat to the right. The two hands at rest are unequally open, and pronated or supinated, and an ingenious acquaintance is quite successful in inferring, at an evening party, a stranger's occupation by the way in which the hands and arms are carried and moved. Even the papillary striation, often almost as characteristic of an individual as his photograph is of his features, is different on the corresponding finger-tip of the two hands. The legs also, despite their similar action in walking, their most common act, present differences, like though less, as is seen in the unequal wear of shoes, &c. In one series of measurements, the right leg was found from one to seven-eighths of an inch the longer, and the right tibia has been found to contain more calcareous salts and less inorganic matter. The careful weighing of the muscles of the legs and of the back, excised from the body, showed the right to be in excess. Many have a decided preference for the right leg in jumping, kicking, wrestling, &c.; and it has been said that, from a square standing position, it is most natural to step off right leg first. Few sit cross-legged either way equally well, or turn out the toes equally. Few also can walk on even ground or swim straight, as the mole burrows, with their eyes closed. The power of orientation is soon lost; we wander and then take a fresh start, only to deviate again in the same direction. We are now making further studies here.

In the general conformation of the surface of the body and of its internal parts, observation and anthropometry detect quite uniform, though usually slight, differences. Few noses are straight, but one enumerator found most to turn to the right, another to the left. Few cheeks are equally full; few can protrude the tongue, gape, smile, corrugate the forehead, wink, make faces generally quite evenly, while in monomania, and even great fatigue, unequal innervation of the two sides of the face is common. The teeth have been said to develop soonest, to be strongest, sometimes larger and more numerous, and to decay latest on the right side. Hair and beard are more abundant, nails are thicker, and sometimes have a "lick," or grow strongly towards the right; and both hair and beard have been said, though with quite insufficient observation, to grow fastest on the right side. Greyness is very often asymmetrical. Asymmetry of the skull and its sutures is almost universal. In about two hundred impressions from different conformators, which we have carefully measured, we have found most symmetry in the occipital, with prominence to the left in the frontal, and still more in the temporal, regions. The right abdomen is more prominent. In right-handed people the left testicle is usually largest and most dependent; and the right in left-handed people. The right breast has been observed to have the best and richest milk, and to be preferred by infants; and the right parotid to secrete the most saliva.

The position of the internal organs is nearly medial in the human embryo till the second month, when the apex of the heart is crowded to the left by the liver. From accidents of position, temperature, pressure, &c., during this period, the viscera are sometimes, though rarely, entirely transposed. This does not, however, insure congenital left-handedness, as Hyrtl inferred, from callosities, &c., to be the case with the two subjects of his first record. Complete transposition is too rare for confident conclusions, but must tend strongly to left-handedness, as the normal position of organs must tend to dextral pre-eminence. In normal states of rest, though the blood is no purer or hotter on one side than on the other, as Aristotle asserted, it is probably conveyed more directly and with more force through the slightly larger left carotid artery. The right hand is likely to be warmest, and the right side to sweat easiest. In violent exercise in the sun, Blake found the left side about one degree hotter in axilla, but no difference in a state of rest. Mosso's volumetric measurements indicated that in hypnotic catalepsy there was slightly more blood in the left arm, while the radial pulse of the right arm is strongest in fainting, and in dying can be felt after the left stops; the latter side being the first to assume cadaveric rigidity. The right vagus nerve seems to act more strongly than the left on the heart. Though Stocker found the left thorax to be more than half an inch largest about, the right bronchus is wider and shorter; and Petit asserted that new-born children breathe first with the upper lobe of the right lung. It has been said that of organs in pairs, those on the right side are apt to be slightly farther to the front. On the relative size of the kidneys, observations differ; but the gravid uterus more often inclines to the right, and the umbilicus is turned to the left. The average predominance in weight of the viscera of the right side is, according to Buchanan, about 15 oz., and in deep inspiration the centre of gravity is shifted slightly backward and to the right, and makes that side freer and readier for action.

Pathological, which is so closely connected with vaso-motor, asymmetry is very common, and many morbid processes are arrested at the median line. Semeiology infers, from the widening of one pupil, which of internal double organs is most diseased. Fevers and the resulting weakness are greatest on the right, which is also affected most and soonest by organic and mineral poisons, blisters, and intoxicants, so that convulsions which begin on the left side are rarely of toxic origin. In opisthotonus, the body curves to the right. Of seventy cases of pneumonia observed by one writer, sixty were on the right side; the complications due to stenosis are often unilateral. Sick headache, or hemicrania, which alternately attacks the right and left side, is severer on the latter. If there is congenital or degenerative left-sidedness, or if an ear, lung, kidney or other organ or member is defective or wanting, it is likely to be on the left side, which is also more likely to be the seat of anaemia, atrophy, cancer, and, according to one opinion, epilepsy. These may be called diseases of arrest or defect, which one writer thinks favoured by summer, while all that augments nutrition, as, for example, cold weather, favours those diseases which affect the right side most strongly, and at the same time resists sinistral maladies. On this side also extra thumbs, toes, and other organs and hypertrophies are most common.

From this general asymmetry animals are not exempt, though most observations are far less reliable. It has been stated by scientific men that double organs in the horse, dog, or other animals, are larger on the right side; that worms, in starting, writhe to the right first. Flierdl states that mollusca roll to the right by preference. It has been said that parrots prefer to stand on, and dogs to lift, the right leg. Huber observed an ant to run around about one thousand times an hour for seven days in a circle of an inch in diameter, indicating thereby incoördination of the two halves of the nerve centre. It is probable that the alleged ambidexterity of monkeys and infants is only relative. One of us observed an infant of nine months, whose hands were held symmetrically to its sides and freed at the same instant, grasp a desired object placed directly in front of it on the table fifteen times out of twenty with the right hand, often even when the object was placed somewhat to the left. Professor Brewer, who has not yet published his figures, found, of several thousand foot-marked horses, more white feet on the left than on the right side, the left hind-foot being most often marked, and the right fore-foot least often. Common spotted, as well as calico or "pinto," horses, have most white on the left side. The same rule, we are told, seems to hold with horned cattle, dogs, hogs, and perhaps wild animals where there is no possibility of fancy-points to be bred to. Nearly all dogs carry the tail to the left. Perfect bilateral symmetry in colour is rare, though there is always a tendency to it. White hair the author regards as a sign of weakness.

In the cerebro-spinal axis, divided by deep median fissures into two corresponding halves and connected by various commissures, asymmetry is no less marked. The anterior cornu of the cord, especially in the cervical and lumbar enlargement, is somewhat larger on the right. Either side of an intact spinal cord of a decapitated frog may be well exhausted by reflex experiments, without much impairing the functions of the other side. If the stimuli increase to great strength the reflexes are diffused to more muscles on the same side before affecting those symmetrically opposite, according to Pflüger's well-known law. As men are said to make the worst face on the side of the greatest effort in severe one-sided muscular strains, if the cord be split with proper precautions in the median plane, each side may preserve the reflexes from that side apparently intact. Setschenow did not observe in this case the double-sided anæsthesia, or reflex depression of Brown-Séquard. Cross semisection of the cord reduces or destroys the power of voluntary motion below on the same side without much affecting it on the other, but increases sensation on the side of the lesion, and depresses it on the other side. Two opposite semisections need not be so near together to destroy the power of voluntary motion on both sides below as to destroy sensation. Whatever other inferences respecting the existence of inhibitory fibres, the course of fibres in the cord, conduction within the grey matter, &c., the many careful observations of this class may justify, they have at least led to the belief that very many posterior or sensory fibres cross soon after entering the cellular grey, while most fibres representing the power of voluntary motion, pass down the same side. Brown-Séquard thinks the left of the cord is more concerned with nutrition, and the right with the functions of animal life.

Of the cerebral ganglia, it has been estimated by various painstaking observers that the entire left brain weighs more than the right; that the specific gravity of the grey substance is greater on the left. Meynert thinks that the left brain has the deepest and fullest, but the right brain the most convolutions; but some have thought that the number of folds was greatest on the left only in the occipital regions, and that there was the most white matter in the right frontal and the left occipital and cerebellar brain.

So great is the asymmetry of the gyri, as well as the cerebral functions, that Exner was obliged to make out separate tables for each hemisphere in his extended study of psychophysical localisation from hospital records. A notable case of this sort was observed by Dr. Dwight in the brain of Chauncey Wright. Various kinds of asymmetry have been noted in the caudate nucleus, the olivary bodies, and especially in the fissure of Rolando, and in the arterial system of the hemispheres. It has been stated, and also denied, that the left frontal convolution develops first; it has also been said that embryonic features are more likely to persist in the right. If there is a defect of development in the right hemisphere, as is more common, or if there is lesion there, the left portion of the cerebellum, connexion with which may be traced along the lines of tract-development and secondary generation, is likely to be affected. The homologous hemispheres are connected by the commissures and decussions, the functions of which are rarely affected by disease, and which have been but little investigated, and very probably have more conductive power and less resistance than even the fibres of the projection-system. According to Meynert, the basis or pes cruris, arising chiefly from the corpus striatum and the lenticular nucleus, crosses in the medulla to the opposite lateral column of the spinal cord, and this is the way over which voluntary impulses pass from the brain to the muscles, while the fibres of the tegmentum, arising from the thalamus and corpora quadrigemina and mediating reflex movements, do not decussate. Flechsig, who derives a large part of the fibres of the basis directly from the cortex through the internal capsule, finds their decussation in the pyramid unsymmetrical, more crossing from the left brain to the right of the cord than in the opposite direction. Sometimes nearly all, and in rare cases almost none, of the pyramidal fibres decussate, great individual variation being observed. The chief transverse commissure, the corpus callosum, first makes its appearance in placental mammals, and is, according to Huxley, "the greatest and most sudden modification exhibited by the brain in the whole vertebrate series". Of its functions, little is specifically known. The few recorded cases of its congenital defect or absence have been marked by great bodily and mental weakness. Brain-diseases are usually asymmetrical, and certain of their most marked forms, hemiplegias, encephalitic processes, yellow spots, &c., &c., are most commonly seated in the left hemisphere. Deviation from bilateral symmetry in skull or brain, though in extreme cases always attended by mental defect, may be considerable without morbid symptoms. Persistent and morbid sense-illusions are often unilateral; in melancholia the two sides of the face often differ noticeably in motor innervation. Aphasia in fourteen out of fifteen cases, according to one estimate, is a disease of the left brain. In this disease the language of ideas may be lost, while the primitive, more emotional bilateral gesture-language may persist. If the left brain be hypnotised, as it may be more or less, independently of the right, finer movements, like writing, are difficult with the right hand. Brown-Séquard and Charcot, however, have found that most cases of hemiplegia are also paraplegic ; the apparently intact extremity being much weakened, the leg more than the arm. Pitres found the left extremities less weakened in right (left brain) hemiplegia than the right limb when the left side was affected. In a study of ten cases of right, and thirteen of left hemiplegia with a Duchenne dynamometer, Berger and his pupil, Friedländer, have recently verified these observations, and found a few cases in which greater energy could be developed by the affected than by the intact leg but, instead of finding the loss of power in the sound limb greater in recent cases, could not observe any inflence due to the duration of the case.

This duality has often been contrasted both with the medial position of some of the medullary centres and with the apparent unity of thought and the functional simplicity of the soul, which latter postulate, as is well known, inclined Descartes to locate it in the pineal gland. Dr. Wigan, however, did not hesitate to speak of two brains which might carry on two independent trains of thought, but which it was the object of education to make co-work, each as the sentry and security of the other. Scholars are able to think of only one thing at a time, and hard study occupies both brains, so that neither is left to work off its energy by causing dreams. We are made of two beings, he held, and, if the two brains are about balanced, vacillation is certain. In fact, one brain is nearly always superior, and controls the other. One brain may be insane, and, if the stronger one be sound, may be long controlled, and its defect concealed by an effort to hold the "self" together. The power to compel the weaker brain to the will of the stronger marks one of the greatest differences between men, and there are many colloquies between the hemispheres. Insane incoherence is like reading a few words from one book and then a few from another on entirely different subjects, with rapid alternations ; a few such duplex trains of thought, Dr. Wigan believes, he has restored to sense by proper disjointing, and rejointing. Dual consciousness, reverie, castle-building, counting steps absent-mindedly, imaginary aggrandisement, supernatural suggestion, another person thinking in the brain, struggles with temptation, characters compounded of bravery and cowardice, hypocrisy and enthusiasm, chess-playing, the half identification with their *rôles* by actors, lucid intervals, the case of lunatics whose illusion is not absolute (who are John Smith or deity, who are kings but strive to conceal it, or who struggle long against morbid or criminal impulses),—these all illustrate and are explained by the duality of mind and its organ as incidents in the struggle and alternate supremacy of two rivals which should co-operate as amicably as the Siamese twins. Holland thought that some of the phenomena of insanity—sinning against knowledge and conviction, rapidly contrasting states of mind, &c.—might be explained by disparity, incoördination or disturbed equilibrium between the hemispheres. Even Lotze and Friedrichs conjecture that one half of the brain may be conscious of psychic disease in the other, while Pick thinks it is through the functions of the sane parts of the brain that it is possible to become conscious of disturbed sanity. Hoppert and Jensen believe double thinking, or illusions of memory, when a new impression or experience brings with it a sense of familiarity, is due to the dual function rather than, as Buccola and others before him prefer to think, to a recrudescence of forgotten dreams and reveries. Flechsig thinks the hemispheres may function alternately. The morbid impulse to write mirror-script may be due to centres on the weaker side suddenly becoming the dominant ones. A normal differentiation of function, culminating perhaps in or near the island of Reil and the cortical centres above, may perhaps be assumed. Several observers now hold that the motor area is larger in the left hemisphere, which Hughlings Jackson calls the leading side. The voluntary power to speak words has been located here, and the automatic power of speaking in the corresponding centres of the right of the brain. Stricker compares the two hemispheres to two coachmen, each with a pair of lines, driving the same horses; the right coachman is strong and trusty, but the left one is more skilful in fancy evolutions.

The human infant, in making synchronous movements with both arms, makes at first many more symmetrical than congruent movements, *i.e.*, more movements involving corresponding muscles of both arms than those in the same direction with noncorresponding muscles. These latter movements appear to be learned later, then one hand learns to act, the other remaining at rest, and finally both hands learn to act independently at the same time. An expert " will-virtuoso " is even able to write a Hebrew sentence from the Old Testament in one direction with one hand, while the other is writing a French madrigal, alternate lines backwards perhaps, and both with extreme rapidity. A thorough and psychological piano-teacher lays far less stress at first on the running scales involving congruent motions, than upon exercises which early and completely dualise the action of the two hands, both in *tempo* and in direction. These phenomena involve no such " division of the attention " as has been inferred, but one hand learns to act more automatically, and the focus of attention to alternate rapidly from right to left. Life is not, however, as has been seen, an even struggle for a monopoly of function between the two halves of dual man. Nurses carry children on their own right arm, leaving the child's right arm a freer field of motion. They hug them on the right side, disturbing the equilibrium of blood-pressure. Early in history the right hand became associated with the south, with the sun, faced in worship, with gods and good omens, and the left with the north, demons, shadows, &c., and was left to perform all the unclean acts of life. The right is the hand of greeting, blessing, oath-taking, writing, throwing, fighting with sword or spear, &c., while the left is the naughty hand, to follow which leads to the bad, the Cinderella, held to often hard but ignoble service. Even superstition has added its weight to the influence of so many occupations, and leads to lying, sitting, seeing, &c., one-sidedly, making the average modern male body, to those who are used to seeing it unclad, as lop-sided as that of the Greek was symmetrical. There may be great selective advantage in the capacity of locating some functions mainly in the left and others in the right hemisphere, and it is not impossible that there is some mysterious advantage to self-consciousness or double-dealing with ourselves in the predominance of one side over another, *e.g.*, possibly the oft-cited asymmetry of Kant and others, or even in the fact of somatic duality; but such possibility must not blind us to the danger of ill-balanced work, so often falsely called overwork

Finally, there is a mystic side of this problem, which has attracted or repelled many, and been referred to in many ways. Why are *p* and *q* so often confounded by children and others, *p* and *b* never; or why must we so often stop and think which is left and right, but never which is up and down? Ulach has hardly given an explanation in saying that the first form of letters are halves of a horizontal, the last of a vertical symmetry, and that the latter requires a repetition of the same sensation, the former not. Again, when the function of reflex action was first established, it was argued by metaphysicians that so slight and accidental a distinction as that between anterior and posterior, could not make so profound a difference as that between the active and passive life of the soul, which was a simple spaceless entity. So, more recently, it has been said that, so far as the brain represents it, the soul must be double. To this it has been replied that an extended seat of the soul must now be admitted, that even the corpus callosum may fail without annihilating soul-life, that a monadic Ego may occur twice, and that the soul is a solidarity and not a functional or non-extended unity. Why the nervous system was so formed that a frontal, medial, and horizontal plane through it should represent functions so distinct as the sensory and motor arm of a reflex arc, the right and left "function" and the direction of gravity respectively, is a question to our mind quite without sense. Not so, however, the question, what influence upon the psychic development of animals and man is due to the power to bring two symmetrical parts of the body into contact, which a fish, *e.g.*, does not possesss. If we bring the two hands together, the one being hot and the other cold, we experience two sensations and not an intermediate temperature. So too if we could do as Socrates is said to have boasted himself able to do, *viz.*, rotate both eyes inward till, over a low nasal bridge, each could look squarely into the other, the optical images would not fuse, while in ordinary stereoscopy we have only to exchange the impressions of the two eyes to invert the perspective. Again, how is it that, despite the independence of the two halves of the body which, *e.g.*, inclines many to make a face on the side of the muscles most strained in great effort or of the pain most keenly felt, yet the homologous points on the two hands are related, not like the identical points of the eye, or like the upper and lower note of the octave which blend into each other, but by a peculiar psychic affinity, so much closer in a sense than that between two adjacent, but just clearly distinguishable, local signs on the same side?

II.

After bringing together from original sources, and carefully considering the above facts and opinions, not all of which can be regarded as final, we are led to think that other methods than those hitherto applied might bring us into closer quarters with the comprehensive bilateral problem. Of these two were considered. 1. Operations on the corpus callosum of animals, and perhaps the pyramid, to partially isolate the action of the hemispheres, and also to reduce the action of one of them. 2. More accurate measurements of the bilateral asymmetry of function. This section is devoted to the general results of the latter method, so far as applied to the arms.

In the first series of experiments, a ruler about six feet in length was fastened on edge transversely on a table. The person whose movements are to be observed sits with carefully measured squareness before the middle of the table, and places his index fingers on each side of a pin that marks the middle of the edge of the ruler. He intends and then executes a sudden movement along the edge of the ruler to the right with the right, and to the left with the left hand simultaneously, endeavouring to make the excursions of both hands alike. His eyes must of course be closed, for they detect and correct for far slighter asymmetries of movement than the hands. The other side of the ruler is marked off each way from the central pin by millimetre scales, and a second person sitting at the other side of the table reads off and records in the protocol-book the distance of each excursion, an ink-line being drawn down the middle of the index finger-nails to aid the accuracy of the readings. Fifty or more such records can easily be made in half-an-hour, and many thousands altogether have been made and arranged. Observations were made, for control, upon many people, but were chiefly confined to two right-handed and two left-handed young men. From tables far too extensive to print here, we have formulated the following conclusions for such movements as the above.

A. I. The preferred hand makes the greater excursion. This was generally most conspicuously the case if the movement was made mainly from the shoulder, but was usually also the law for movements made at the elbow, wrist, and knuckles. One person seemed, from these movements, right-sided at the shoulder and elbow, and left-handed at wrist and knuckles. The ratio of the excess-distance of the preferred hand to the whole excursion varied greatly with different persons, and somewhat, though much less, with the same person at different sittings. Between twenty and fifty centimetres from the central pin the asymmetry of movement was greatest, and was less for both greater or less excursions, as if the median plane and the position of fully extended arms were the bases from which intermediate positions were estimated. Weighting each hand alternately had no constant effect, but if, instead of slipping the finger-tips directly upon the ruler-edge, they rested upon and moved slides, and one of these was made to move with greater resistance than the other, the amplitude of movement was reduced. In one single series of observations, when the sitter was unusually fatigued at night, the non-preferred hand constantly made the greater excursions, and on another occasion of fatigue the same person made an extraordinary excess of movement with the preferred hand. Neither of these results, however, could be obtained again by strongly fatiguing one arm just before the sitting. In all these cases the movements were made with one sudden impulse of innervation, as nearly equal right and left as possible. If the impulses be more slowly sustained, or corrected at their close, to give fuller play to afferent impressions, unilateral excess is slightly less.

II. If these movements, instead of being simultaneous, be successive, with intervals of one and of four seconds between, there is a tendency to reduce the excess of the preferred hand, and, in some individuals, to make an equal or even greater error in favour of the non-preferred hand, *i.e.*, for a left-handed person, whose left-hand goes farthest in simultaneous movements intended to be equal, to now make the greater excursion with the right hand, and *vice versâ* for a right-handed person. The degree of right- or left-handedness seems, however, to be involved. The right and left hand preceded alternately in these observations, but our figures show as yet no constant difference, due to the precedence of either hand.

III. If, with both eyes open, the experimenter stick a pin into, or move one fixed to a slide upon the ruler to, a certain point, and then, with careful ocular measurement, attempt to place the other pin an equal distance on the other side of the middle point, there is still a pretty constant, though much smaller, excess on the side of the preferred hand. This indicates that, to binocular vision, a line at right angles to the median plane seems a little longer to the left than to the right of it, if the observer is right-handed—an error in the same sense as that of the hand in simultaneous movements. One case was found, however, in which the exact opposite occurred, the excess being on the side of the non-preferred hand. This observation can only be made within limited angular distances. If the pins are too far apart, so that, when the eyes are fixed on one, the other is seen far in the field of indirect vision, the error is more irregular, and, so far as our limited figures cover this point, greater in the same sense as above. These observations must thus be restricted to small angular distances.

B. In a second series of observations, two rods or rulers, similar to that described above, were fastened, one in a perpendicular, the other in a horizontal position, crossing each other in the middle at the height of the shoulders. These four quadrants we numbered from the side of the recorder, the upper quadrant at his left being No. 1, and around with the hands of a watch to quadrant four at his left hand below. The person under observation assumes the primary position, with erect body and eyes closed, extending both arms horizontally and nearly straight, and laying his two index fingers together in angle of the first quadrant. The fingers being then moved simultaneously as in A. I., the left passes up along the perpendicular rod, while the right finger moves through a distance intended to be equal, outward to the right along the horizontal rod; both distances being noted from the other side as before, and the observer passing later to the other quadrants in order. Here the effect of the gravity of the arms was almost always predominant, and even in the longest series of observations, after the experimenter had learned his error, was never compensated for. Whichever arm moved up made a less, and whichever arm moved down made a greater, excursion than the arm which moved horizontally at the same time. Yet if the right arm of a right-handed person moved up and the left out horizontally, as in the second quadrant, the excess of the latter over the upward movement was less than if the left went up and the right outward, as in the first quadrant, while in the two lower quadrants the excess of the downward over the horizontal movements was greater when made by the right than when made by the left hand. If, then, as seems reasonable to infer, our knowledge of the plane surface in which this cross lay were dependent upon the muscular and innervation-sensations involved in these movements alone, an inch in this surface would seem much longer above the level of the shoulders than below them, and somewhat larger to the left of the median line than to the right, for a right-handed person:—a supposition, of course, only abstract, because, in fact, we learn to judge of all the space within reach of our hands and arms by the movements of both arms in both directions, and especially by the eyes. When the hands were alternately weighted, the relative excess of the downward, and the deficiency of the upward movements was easily increased.

Many series of successive movements, corresponding to A. II., and of ocular judgments of relative distances of movable pins, corresponding to A. III., were made, but not enough to warrant conclusions as yet, in the complex cases of B.

C. I. Two large thimbles were made for the two index fingers, one of which carried a light board fifteen centimetres square, to the plane of which the finger, when inserted in the thimble, was perpendicular, while the other thimble was weighted to equal the weight of the first, plus the board. Upon this latter was fastened a piece of heavy paper, with concentric circles, one centimetre apart, printed on it, the common centre being adjusted to exactly coincide with the position of a short needle on the end of the other thimble, so that if the index fingers, thus armed, were brought accurately together, the needle of one thimble would pierce the paper on the board carried by the other exactly in the middle;[1] the paper being of course removable, when the holes became too numerous to be accurately counted or located. This experiment was made with closed eyes, both arms being moved systematically from the shoulder. Besides this first movement just described, two other series of records were made, both by approximating the arms to the median plane by symmetrical shoulder-movements, in the one case directly over the head (II.), and in the other low down behind the back (III.). In each case effort was made to bring the index fingers, armed with recording apparatus, as accurately together as possible, with an impact strong enough to leave a trace, but at the same time so gently that, even if there was considerable error, the direction could not be inferred from the leverage of the recording table, for in that case it would be instinctively corrected at the subsequent movement. In observing the record thus made, it was found first that the points of the pins were by no means accurately in the centre of the concentric circles, like shots about the bull's eye of a well-used target, but about another and often rather remote centre, the position of which, best estimated by simple inspection, is comparatively constant for the same person. One extremely right-handed and one extremely left-handed person brought the preferred hand constantly farther from the axis of rotation at the shoulder in each of the three positions than the non-preferred hand, as if the preferred arm were slightly longer, and experience had not taught the proper compensation. Another strongly right-handed man brought the left finger farther front in II., farther back in III., with no discernable difference of elevation in II. The preferred hand was uniformly highest in position I., and likely to be so in III. Though our data comprise many thousand records, they warrant no inference which hand is farthest front in II. The individual error here is constant, but bears no relation yet discernible to either right- or left-handedness, or to relative eccentricity of localisation. In another series of records (IV.), the fingers were both moved in the median plane in front, one upward, the other downward. Here the same finger was outermost as before, and there was also generally a slight tendency to overlap, but which hand, if either, tended more strongly to cross the plane into the dominion of the other, has not yet been determined. The deviations of a conjectured median plane, thus determined from an exact geometrical one, would no doubt be as great, and as hard to determine, as the difference also known to exist between the mathematical and the empirical horopter; failure to come quite round to the same vertical plane was constant in none of our subjects. If, finally, the contact was made by bringing one hand well round into the domain of the other (V.), the approximations were less accurate than if made in the median plane. These movements are a little, but only a little, more accurate in front, where the volitional action of the hand is usually guided by the eyes, than above the head and behind. If we could determine the farthest possible point in each direction, and for each position of the joints, amount of pronation, supination, &c., that could be touched with each index finger, a constant primary position of the body being of course assured, and the effects of fatigue upon the form of such a surface being eliminated; if we could then construct, within this surface, other iso-potential surfaces representing the angular translocating power of each arm straight and with different degrees of flexion; if through these surfaces we could construct lines of greatest and least flexion-power, &c.—we should have not merely a record of the mechanical properties of the framework of the arm, but superimposed upon this common element would be differences between persons and each arm of the same person, which would represent his and its entire motor-history and experience; causing endless variation in the lines of easiest, hardest, swiftest motion, position when at rest, muscle-sense and judgment, &c., and giving distinct individual habit and character to each limb, muscle and centre of motor innervation, which, even when trained, not only in skilful but in pretty equal use of the hands, we fail to know and compensate for without the use of the eye.

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[1] The apparatus here described, and that used in A. were both devised by Professor H. P. Bowditch of the Harvard Medical School, with whom these experiments were originally begun. The paper described above is the same as that used by Bowditch and Southard. See their article entitled "A Comparison of Sight and Touch," in *Journal of Physiology*, Vol. iii., No 3, Plate xvii.

D. An extended series of reaction-times was measured for the four persons under observation, two of whom were right- and two left-handed, with an arrangement of apparatus similar to that described by Wundt (*Physiologische Psychologie*, Bd. II., s. 231), for which we were indebted to the kindness of Mr. C. S. Peirce, and which was used as follows. The hearing power of each ear being found to be about normal and equal, both were equally exposed to the noise of a falling ball with warning, and five quickest reactions, by pressing the key, were made alternately with the right and with the left hand. From fifty to eighty reactions could thus be made without fatigue at one sitting, the records of which were read from the dials of the Hipp-chronoscope, and recorded and averaged. As a result of many hundred records, it was found that, for three of the four persons tested, the reaction-time on the stronger or preferred side was greater than that made by the non-preferred hand. This difference, though slight, was uniform and constant. The fourth student, right-handed, but not extremely so, made the quicker reactions, scarcely less uniformly and constantly, with the right hand. Should the rule which holds for the other three turn out to be a general one, we may have to reflect how the current view, that regards the left of the body and the right of the brain as predominantly passive, and the right side of the body and the left hemisphere as mediating more than half the motor functions, can be made to comport with Wundt's identification of apperception with the generation of the motor impulse. How, we should have to ask, upon his hypothesis, can the latter process be more rapid on the non-preferred side?

E. A dynamometer was designed, consisting of a stiff spring with two long inflexible arms, one of which carried a pencil and the other a broad metallic table for a piece of stiff paper, upon which the pencil recorded the degree of approximation of the two arms made by the hand of the experimenter. After each record the plate was slipped along a few millimetres for a new record by an assistant, who marked each line r. or l., according to the hand used. The power put forth by the hand in clenching the spring is thus represented inversely by the recorded distance between the arms. This simple instrument, though by no means free from objection, we found sufficiently accurate in a long series of comparative movements for our purposes. Our results upon the above four persons were as follows.

I. The preferred hand can always exert the more force, showing that its pre-eminence is not in skill alone. This is the case in every series, averaged from eight or ten maximal clenches alternately with the right and left hand. There is sometimes, however, a sudden excess of power in the non-preferred hand. There is also, subordinate to the general effects of fatigue, very speedily and strongly manifest here, a change in the maximal power of both hands together, now slow, now abrupt.

II. A maximal clenching movement with one hand is weakened if a like maximal movement be made at the same time with the other hand. This, which is the opposite of the result recorded by Quetelet, who found the power of each hand increased if the other was making the same effort at the same time, was uniform with the four individuals we tested. The preferred hand had more power to interfere with and weaken or draw upon the power of the non-preferred hand than the latter had to weaken the former. If, instead of a symmetrical movement, the other hand made a maximal effort of tensing the extensor instead of the flexor muscles of the hand, or opening it as far and forcibly as possible, no constant effect on the simultaneous clenching power of the other hand was observed.

III. A submaximal standard clenching effort was made with one hand, and, after the lapse of two seconds, an attempt was made to repeat this effort by making another of the same intensity. The most constant result here obtained was that, when it was attempted to repeat the standard movement with both hands simultaneously instead of with one, the effort was too great, indicating summation in repeated sub-maximal movements; when the standard movement was repeated with but one hand it was generally underestimated.

IV. The attention, so far as controlled by fixing the eye on one hand, has power to intensify the maximal energy of the clenching effort of the hand to which it at the instant is directed, and was so potent and disturbing a factor that it had to be controlled by being directed to some intermediate object. The attention seems to have more power over the right hand than over the left hand, but, if fixed on the left, very commonly causes its maximal power to develop slightly in excess of the right.

Throughout the above observations we have been increasingly impressed with the very wide range of individual variation, and we have no data as yet for inferring a more general validity from what we have found to be the case with some or all of the four cases to which our observations have been more or less restricted. We need careful studies, both anatomical and functional, of a great number of cases; farther and more detailed research in each of the above directions, A., B., C., &c., and by other methods, before we can distinguish confidently between individual and general laws. We are, however, convinced (1) that every deviation from perfect bilateral symmetry of form or function is to be accounted for without recourse to occult causes of any sort; (2), that the key to the entire bilateral problem which shall reveal a common principle for all the various paired organs is to be sought in the study of bilateral muscle-tension and contraction, the only act of will; and (3), that the solution of this problem, when reached, now seems likely to shed light on the nature of consciousness.

THE STAGES OF HYPNOTISM.

By EDMUND GURNEY.

One of the first things which strikes the student of what is often loosely called the 'hypnotic' or 'mesmeric' state is this—that even the simplest manifestations of hypnotism are wont to present not *one* state but *two*, distinguished from one another by very marked characteristics. But the distinction, as usually drawn, has been of a very rough kind. As a rule, it has been noticed that good 'subjects' first get into a state in which many of them show great acuteness of sensibility, and in which all of them can be made to do or imagine very odd things; and that from this they gradually merge into a state of profound sleep or even coma. Such were the stages as originally observed by Braid, and subsequent investigation has done little to define them further. I am going to point out what appear to me grave deficiencies in this distinction of states, and to attempt to draw a much more precise one. But, before doing so, it is necessary to refer to another mode of distinction, which, if not cleared out of the way, might greatly confuse us. In discussions on hypnotism we continually find three *types* of condition recognised—the *cataleptic*, the *lethargic*, and the *somnambulic*: the cataleptic being the condition where the limbs will remain in any position in which they may be placed, without effort on the 'subject's' part; the lethargic being the condition where the muscles are relaxed, but abnormally liable to contractions and spasms under gentle stimulation; the somnambulic being the condition in which the 'subject' exhibits the singular eccentricities of conduct associated with public entertainments. But though these are all real and important conditions, they do not the least represent distinct *states of the individual*, or distinct *stages of hypnotism*. For the peculiarities of muscular condition may quite well *coexist* with that peculiar mental state which is described as somnambulic. The cataleptic state, moreover, does not belong to normal hypnotism at all, but is a decidedly exceptional phenomenon, and can only be considered otherwise by confusing it with the mere ordinary *rigidity* of the limbs; and again the effects of muscular irritability may be locally produced, by hypnotic processes, in various parts of the body, while the 'subject' remains in his normal waking state. On the whole, then, this mixing up of physical and mental and of constant and occasional characteristics, in a list which professes to sum up the fundamental forms of hypnotism, seems extremely misleading; and in what follows I shall speak only of cases where the *mind* of the 'subject' is to some extent affected, and shall base my distinctions primarily on the constant features which that mental affection displays.

If, then, the 'subject'—the conscious individual and not merely a part of his body—has succumbed to the hypnotic influence, if he has passed out of his normal waking state and crossed the threshold of trance, then, before he reaches the profound sleep in which his mental condition is a mere blank, there lie before him two and only two markedly distinct states or stages, each of which however may present within itself a very large amount of variety. We may conveniently designate them as the *alert* state or stage and the *deep* state or stage. These states are, I believe, produced or producible in the case of every 'subject' who is sufficiently susceptible to hypnotism to be able finally to be put to sleep by it; but the question will very naturally occur how, if that is so, there can ever have been a doubt about it. How is it that the character, and even the very existence, of the two states has escaped general recognition? The answer is broadly this,—that, in the first place, each state admits of many degrees, and the characteristics of either of them may be only very slightly or only very transiently presented; and in the second place, unless special means are adopted, it is very easy to mistake the alert state for normal waking, and the deep state for sleep. This will become clearer when the states themselves have been further described.

To begin, then, with the *alert* state. This is the state in which a 'subject' is when, after the usual preliminary period of gazing fixedly at some object held near the eye, or of having passes made over the upper part of his person, and after the usual involuntary closure of his eyes, the strain on his eyelids is released by a few touches and words, and he is restored to what may look quite like his natural waking condition. Sometimes, it is true, the difference is very marked, and he will sit with a vacant air, irresponsive to every voice except that of the operator, and clearly not in possession of his ordinary faculties. He may be made to perform imitative actions and to obey commands in a mechanical way; but his consciousness may be at a very low ebb, or (as some have held) may have lapsed altogether. But even these cases will exhibit two characteristics of the alert stage which are also characteristics of normal waking:—the 'subject's' eyes will be open and capable of seeing; and he will (almost invariably) prove sensitive to pain if he be pinched or pricked. Very often, however, the resemblance to normal wakefulness is far closer than this; for the 'subject' will be found to converse with perfect comprehension, memory, and even humour. Where then does the essential distinction of his state lie?

The main point which can be observed at the moment is that though perfectly capable of sustaining a conversation, he does not *originate* remarks. If not spoken to he will sit quiet, and, if simply asked what he is thinking about, he will almost always answer 'Nothing'. Perhaps it may be said that even this condition of passive vacancy is after all not so very different from that in which a large number of our fellow-creatures spend a large portion of their waking hours. If this be allowed, then we shall have to seek the essential difference of the hypnotic condition, not in any feature which it immediately presents, but wholly in two *possibilities* attaching to it, either of which demands appropriate treatment to become a reality. In the first place, if the 'subject' be left completely to himself, he will rapidly sink into the *deeper* state, and thence into hypnotic sleep, in either of which he will prove insensitive to any moderate amount of torture. Clearly the condition which leads rapidly and naturally on to further conditions of this sort is not a *normal* one: it can never be said of a person in a *normal* state, however sleepy he may be, that in two or three minutes he will be in a condition when pins may be run into him, or the severest pinches applied, without awaking him or evoking any sign of distress. The passage into these deeper conditions, it should be observed, is often so rapid that the fact of their being reached *through the alert stage* may be wholly unnoticed. The hypnotising process may carry a sensitive 'subject' in a minute or less from a condition of normal waking into hypnotic sleep; and in such a case the 'alert' period has been represented only by the few seconds before his eyes closed. If he had been taken in hand during those few seconds, and been talked to or kept employed, this passage into the deeper state would have been prevented; but if he is allowed to follow the natural course without interference, he will simply be seen to go to sleep, and he must be awakened by the operator before any phenomena can be exhibited. This liability to lapse, then, is one distinguishing characteristic of the alert state.

It is characterised, in the second place, by the possibility of obtaining, while it lasts, certain special phenomena of an active sort. The 'subject' can be made to do, and to continue doing, any action which the operator commands, although he may be perfectly conscious of making a fool of himself, and may strongly desire to resist the command. He can also be put under the influence of delusions—can have his senses deceived, so that he mistakes salt for sugar, ammonia for *eau de Cologne*; or can even be made to believe that he is in some distant place, or that his identity is changed.[1] These are the common platform-phenomena; and as the very object of hypnotising a 'subject' at all is usually to procure some of them, and the possibility of procuring them is thus practically certain to be tested, it might seem that the recognition of the abnormality of his state was in this case, at any rate, assured. But though this may be so during the *course* of the manifestations, it is not unfrequently otherwise at their *close*; and a 'subject' who has been allowed, perhaps, to lapse into sleep, while others are being operated on, is often roused and even sent away, without its being observed that he has been roused not into a state of normal wakefulness, but only into the alert stage of hypnotism. To all appearance he is quite himself; and, the performance being over, it does not occur to anyone to try whether he is still at the mercy of commands and delusions; while the general stir and commotion prevent him from lapsing again into sleep. So he goes off home, acting and answering in a quite natural manner, till the effect wears gradually off; or, as more often happens, he continues to feel drowsy, and headachy, goes to bed, and wakes up in his usual condition next morning.

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[1] It should be remarked that even here the necessity remains of stimulating the 'subject' from time to time, to keep him going. When he is under a delusion, he will sometimes give long connected accounts, in great part often fictitious, as if he were following the course of a dream; but though very slight questions and comments will be enough to make him proceed, he will not do so if left to sustain a complete monologue.

Passing now to the *deep* stage, we find that this in turn is liable to be confounded with a contiguous condition, namely, the genuine hypnotic sleep into which it tends to merge. It resembles that condition in the fact that the eyelids are closed; that, if one of them be forcibly raised, the eyeball is found to be rolled upwards; in the general insensibility to pain and to ordinary modes of stimulation. And there exists here precisely the same chance as we noted in the former case, that the particular stage will escape detection. If the 'subject' be left to himself, he will have no opportunity to manifest its characteristics, but, passing rapidly through the period during which these might be evoked, will soon lose consciousness and individuality in profound slumber. With some 'subjects,' moreover, the invasion of mental torpor is so rapid that it might be hard to fix and retain them in the genuine deep stage, even if the proper means were adopted. But many others, if taken in time, after their eyes are closed and they have become insensible to pain, but before sleep has intervened, will prove quite capable of rational conversation; they are mentally awake, even when their bodies are almost past movement, and when even a simple command is obeyed in the most languid and imperfect manner. The state is, however, harder to sustain at an even level than the alert one, owing to a stronger and more continuous tendency to lapse into a deeper condition. In the alert state the 'subject' can usually be kept going for an indefinite time: in the deep state he usually shows an increasing dislike to being questioned or meddled with.

Enough, perhaps, has been said to show how the two stages of hypnotism may be distinguished from normal waking on the one hand and from blank slumber on the other. But the marks which have been so far given as distinguishing the two stages from one another are by no means equally constant and precise. The closure of the eyes, the insensibility to pain, the disinclination, amounting sometimes almost to inability, to move, are all in a general way characteristic of the deep stage; and to them may be added a diminution of the irritability of the conjunctiva and of the susceptibility of the pupil to light, with irresponsiveness to any voice but that of the operator.[1] But of these characteristics the only one which is invariable is the bodily torpidity. Closure of the eyes is nearly invariable; but I myself have seen two well-marked instances where the eyes remained wide open throughout the period which, as judged by all other indications, was certainly the deep stage. The irritability of the eye is sometimes only slightly affected. Insensibility to pain, though usual, is liable to still more frequent exceptions, as also is the irresponsiveness to the address of persons other than the operator. Nor are these normal features of the deep stage, even when present, entirely distinctive; as more than one of them are often also present in the alert. The irritability of the eye may at once suffer marked diminution.[2] Again not only is insensibility of a *local* sort in the alert stage one of the commonest phenomena of public exhibitions, when an arm or a leg is stiffened, and submitted to the audience to stick pins into or otherwise maltreat; but even *general* insensibility may supervene while the 'subject' is still open-eyed and capable of actively responding to suggestions and commands. This is especially the case if his attention is strongly directed in some particular channel: for instance, a 'subject' who normally is sensitive in the alert stage, if while in the deep stage he be ordered to do some particular thing when he wakes and be then roused into the alert stage, will often prove insensitive *till the thing is done.* Similarly I have known a 'subject,' who was quite sensitive before, become insensitive after, the communication of some strong impression. Being told that his sweetheart was drowned, he expressed the resolution not to survive her; and, while in this heroic mood, he bore the severest and most continuous pinching without a sign of sensation. In such cases the nervous energy is all, so to speak, concentrated into a single channel, in the performance of the task or the contemplation of the catastrophe, and there is none left to feel with—just as it has happened to soldiers in the excitement of battle to be temporarily unconscious of wounds. Insensibility to pain may also be present in the alert state, if the 'subject' is put under the influence of such a delusion as would naturally involve it, *e.g.*, if he is made to believe he is a statue; and I have known insensibility, which originated in this way, *continue* for some little time after the delusion was withdrawn, and another substituted—the phenomenon being the more remarkable in that the 'subject,' who had been receiving the most savage nipping with total indifference, actually shed tears at the memory of a *fictitious* nipping, which he was told had been administered to him on the previous day. Closure of the eyes, again, may be present in a state which in respect of every other symptom is the alert one: indeed, unless the spasm which brings down the eyelid during hypnotisation be relieved by some distinct local process, the eye might naturally remain closed as much during the alert stage as during the deep. Nor can we even account the bodily activity which may be evoked during the alert stage, in contrast with the torpidity of the deep one, as a really sharp or essential distinction. The activity, it will be remembered, always has to be evoked *ab extra*, and often much against the 'subject's' inclination. If left to himself, he will sit as passive in the former state as in the latter, and the one will insensibly merge into the other. The difference here, then, might seem to be one rather of degree than of kind; and the two states to be merely the less and the more advanced stage on the path to complete torpor. I may add that the advance of *mental* decline, where it can be marked, seems to be of the same graduated kind. Thus a 'subject' who, first in the alert and then in the deep state, is assured that he is going to be hanged next morning, will succumb to the idea with about equal readiness in both cases; and the only observable difference will be that in the deep state he does not seem equally to realise its gravity. A 'subject' for instance, with whom I tried this particular experiment and who was rendered decidedly grave when in the alert state, was chiefly occupied, in the deep state, with the half-jocular invention of dodges to avoid pain. But, where the whole mental condition is so abnormal, it is hard to regard such slight differences in the power of judgment as important or distinctive, or to regard them as other than steps in a single process of mental unhingeing.

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[1] How little even the most elementary distinctions between the two states have been realised by high authorities, a couple of specimens from Heidenhain may show. "The pupil of a hypnotised person contracts energetically when light falls upon the eye." It is impossible that this sweeping assertion could have been made, had Heidenhain examined eyes in any but the alert state. "Hypnotised persons never fall down." This statement, it is true, he qualifies in a note by saying that he has seen *one* person fall down. The fact, of course, is that in an enormous majority of cases (I myself have never seen an exception) the 'subject', if standing, falls down a very few seconds after closing his eyes and lapsing into the deep state.

[2] See (in addition to the observations of Braid, Tamburini and Seppelli), the case recorded by Mr. Stanley Hall in MIND XXX., p. 177.

The question then presents itself: Is there any distinction of *kind* between the two states—any single test by which we can make sure in which of them the 'subject' is—any sort of phenomena, capable of constant reproduction, which will draw a clear line between them, and not merely represent a gradual and continuous decline of hypnotic waking into hypnotic sleep? I believe that there *is* such a distinction; and that the phenomena needed to establish it are to be found in the domain of *memory*. And as memory will afford the means not only for distinguishing the one stage of hypnotism from the other, but also further for distinguishing the 'hypnotic state' as a whole from the normal one, I may attempt to make my rapid sketch embrace all its various conditions, so far as I have been able to observe them.

First, then, as to the 'subject's' memory, when completely awakened from the alert state, of what has taken place during that state. The degree of it varies with the number of times that he has been under the hypnotic influence.

(1) A 'subject' who is quite fresh to hypnotism has frequently some remembrance, on waking, of *all* that he has gone through. Of such actions as are usually exhibited on platforms—imitative movements, sneezing, laughing, jumping and the like—his remembrance is distinct; and he perfectly recalls not only the actions but the feelings of passive acquiescence, or of surprise, or of repugnance, with which he performed them. A not uncommon description is that he felt as if he had *two selves*, one of which was looking on at the involuntary performances of the other, without thinking it worth while to interfere. He also perfectly remembers such simple mental operations as the effort to recall his name. Of performances which have involved more complex *mental ideas*, and where his mind has been at the mercy of some concrete form of delusion, his remembrance is dimmer. But still he will give some account of parts played by him in imaginary scenes, or even when under the impression that he was some one or something other than himself. It is probable that the delusive impression in such cases has not been quite complete. For instance, a 'subject' who, when awakened to his normal state, remembered the fact of having been put to flight by a white ghost, described himself as having in a sort of way known that it was only a handkerchief which the operator was flourishing, and yet as unable to resist the ghostly terror.

(2) After a very short course of hypnotisation, these illusory changes of scene or of identity, and even the simple mental operation of trying to recall some familiar fact, are found to have left no trace on waking; but the 'subject' can still perfectly recollect the imitative and other actions which he has performed *in propriâ personâ*, and the sort of feelings which accompanied them. It will be observed how curiously fatal this fact is to Professor Heidenhain's theory that the actions of imitation, and of what he calls automatic 'obedience,' which a hypnotised person performs, are purely reflex and unconscious. For it is just of these actions that the clearest remembrance is retained; and in fact, if the 'subject' has been made to perform a few of them after being thrown into a light trance-condition, and is then brought back to the normal state, there has been absolutely no breach whatever in the continuous stream of his consciousness. He has passed through a strange experience, and that is all.

The memory of the events of the alert hypnotic state finds its precise parallel in certain cases of natural somnambulism—a condition in which all actions are of course performed *in propriâ personâ*, and without any externally-induced illusion. Somnambulism is, as a rule, a decidedly deeper state than the lighter stage of hypnotism; and memory, on waking, of what has occurred in it is exceptional. I have, however, lately met with well-marked cases of it in two of my own acquaintance, who gave descriptions of their somnambulic experiences very similar to those given by hypnotic 'subjects'. Though exceptional, such cases are probably not absolutely rare; and it is the more curious that Despine, Heidenhain, and others should have so hastily and sweepingly assumed that the function of true psychic memory is suspended in hypnotism.

(3) In my experience no true memory has ever been exhibited, on complete waking, of things which have been done or suffered in the *deep* state. Nor am I aware of any record of such an event. The performance, at the appointed time, of *commands* impressed on the 'subject' when in the deep state hours or even days before, is not a case in point. For though he feels impelled to do what he has been told to do, he has no recollection of the fact of having been so told, and is at a loss to comprehend his own impulse. This is merely an instance of the well-known phenomenon of cerebral (or as it has been called 'organic') memory; but is interesting as taking place when the person is otherwise in a completely normal state.

So much, then, for the conditions of the memory on complete waking; next as to its conditions in the hypnotic states themselves.

(1) Facts of the 'subject's' general knowledge, his address, business, recent employments, and so on, are remembered even in the deep state, if that state is sufficiently marked and prolonged for some amount of conversation to be sustained in it.

(2) With a favourable 'subject,' something that has happened during one of the hypnotic states will often recur to the memory on the next occasion when that state is produced, though in the interval of normality—amounting it may be to several days and nights—which has intervened between the two occasions, it has been completely forgotten. (The thing, however, must not be an action performed *in propriâ personâ*, for this—as we have seen above—would *not be forgotten* during the *normal* state; nor connected with a delusive impression, for this—as we shall see below—would *not be remembered* on the recurrence of the *abnormal* state.) This recurrence may be made a test of the extreme rapidity with which a 'subject' will, in exceptional cases, pass from the alert hypnotic to the normal state—his attention being first arrested by a suitable incident, a few passes of the waking and 'clearing' sort obliterating all knowledge of it, and then a few more of the opposite sort bringing it back again to his mind, all within the space of a minute. But the chief interest of this *induced* phenomenon of alternating memory lies in its resemblance to what occurs in *spontaneous* conditions. Even ordinary *dreaming* occasionally presents this feature in an embryonic form—a dream-scene or dream-incident being often more apt to recur in dream than in waking moments: not that the mere recurrence could

be taken necessarily to imply memory; but experiences are recorded in which the scene or incident, though not one associated with the waking life, is distinctly *recognised* as familiar when it recurs, which of course does imply a sort of memory. *Natural somnambulism* may seem to present more distinct resemblances; and certainly, if one judged from expressions used by the somnambulist, particular ideas which have made no part of the waking life, are apt to recrudesce in the sleep-waking state. As a rule, however, it would be hard to represent this phenomenon as involving more than a mere reawakening into activity of certain nervous tracts, which naturally manifest the fact of their activity by the same external results as on previous occasions. Even in the rarer cases, which more strongly suggest the recurrence of the past events as such, the presence of true psychic memory is more doubtful than in hypnotism, or at any rate is harder to substantiate; for the very tests which might substantiate it naturally tend to wake the somnambulist, and so to put an end to the condition. Perhaps, therefore, the clearest interest of the hypnotic alternations of memory is rather as illustrating the spontaneous alternations in cases of '*double consciousness*,' where a single individual lives in turn two (or more) separate existences. There, as here, the transition may be almost instantaneous; and there, as here, while the memory of the *normal* state is continuous (its events being remembered even in the abnormal condition, just as we have seen that the events of ordinary life are remembered in either of the hypnotic states), the memory of the past events of any *abnormal* state lapses and recurs with the disappearance and reappearance of that state.

(3) If the phenomena mentioned under the last head are somewhat uncertain, it is otherwise when the condition intervening between two hypnotic states of the *same* kind is not normal wakefulness but an hypnotic state of the *other* kind—*i.e.*, when a deep state intervenes between two alert, or an alert between two deep states. I have then found that (with certain well-marked exceptions to be mentioned hereafter) the ideas impressed in the one sort of state are invariably forgotten in the other, and are as invariably again remembered when the former state recurs. Thus the 'subject,' when in the alert state, is told something—some anecdote or piece of ordinary information—which we will call A. He is then thrown, or allowed to fall, into the deep state with closed eyes, and is asked 'What were you told just now?' He is quite unaware what is meant, nor will the broadest hints recall the missing idea. He is now told something else, which we will call B; and is then re-awakened into the alert state. Being asked the same question as before, he at once repeats not B but A, and it is impossible to evoke in him any memory of B. Thrown again into the deep state, he in a similar way recalls B, and A has once more vanished. Finally he is completely awakened, informed that two things have been told him within the last five

minutes, and offered £10 to say what either of them was—with a result entirely satisfactory to the experimenter. Occasionally I have succeeded in hitting a transitional moment at which *both* things were remembered; but it was a sort of knife-edge, and the slightest manipulation or pause tending to deepen the condition brought about the customary separation and oblivion of the thing told in the alert state.

These phenomena seem singularly constant. I have obtained them with a large number of 'subjects,' and with three operators in three different parts of England, two of whom certainly had no idea what result I was expecting. They represent, of course, that clear distinction of the two hypnotic stages—as something more than mere continuous degrees of a single trance-condition—to which I have been leading up; and the great rapidity of the transition, together with the sharpness of the results, seems to make them as satisfactory indications of that distinction as could well be imagined.

(4) To the rule thus established, there are certain definite exceptions. If the idea impressed in the alert state is a *delusion*, involving either a change of *scene* or a change of *identity*, it is not remembered in the usual way. A 'subject' who has been made to believe himself elsewhere than in the room where he actually is, or to assume the part of another person or of an animal, and who while under this delusion has been carried into the deep state, on returning from that state proves almost always to be the natural self of the alert state, and refuses to believe that any idea of any sort has been impressed upon him. In the few cases within my experience where this has not happened, and where the delusory part was resumed when the alert state returned, it was noticeable that the bare *idea* seemed to revive first—very likely as the memory of the remark which had preceded and produced the illusion—and that then the illusion followed in the wake of the idea. Thus a boy who had been enacting the part of a fish on the floor, and who had been then thrown into the deep state and placed in a chair, was brought back to the alert state by gentle upward passes. He sat for some seconds staring at the floor in a puzzled way, and then flung himself down and recommenced the fish-like movements. Waking to the alert state by any *sudden* means always ensured forgetfulness, carrying the 'subject' at once over that low degree of the alert stage where recurrence of the delusion was possible. It may be added that though delusive ideas are thus forgotten, yet if the same delusion be again suggested in a general way, the *details* of the former one will be remembered. Thus a youth who had been impressed with the idea that he was a schoolboy attending Brighton College, and that his name was 'Gerald Hamilton,' completely forgot this change of identity when he returned to the alert state in which he had undergone it; but on being then again told that he was

attending Brighton College, and asked his name, he gave it as Gerald Hamilton.

(5) The next case is stranger still, though quite as definite. If in the alert state any physical effect is produced by suggestion—*e.g.*, if the 'subject' is made unable to flex his arm by being told that he cannot do so—a further very marked effect is produced on his mental powers and memory, although there is no special sign that his mind is preoccupied with attending to his bodily symptoms. A boy's arm was thus extended; he became unable to talk rationally; and being set to read aloud, he did so in a stupid and mechanical way, and could not recollect what he had read. He was now passed into the deep state, during which his arm dropped; and on being recalled from this state, was asked what he had been doing just before he went to sleep. He replied that he was holding his arm out; but both forgot and utterly denied the fact of the reading. Similarly the operations of opening a piano and picking out a tune on it, carried out by a 'subject' while under an impression that he could not unclench one of his fists, were clean forgotten after an interval of the deep state.

(6) Any sort of argument or bothering has a singular effect in causing the 'subject's' mind to drift into a deeper dream-like state. Thus, at the close of the experiment just mentioned, the 'subject' was pressed for some time as to how his arm, which he remembered to have been stiff and extended, had dropped. While he was in a state of puzzle and worry, a sudden clap and call brought him instantly to a point at which the whole circumstance as to his arm was completely forgotten; but being allowed to lapse quietly, he again recalled it. There are thus subdivisions of recollective power within the alert stage itself.

(7) We now come to an apparent exception of another sort. If the thing impressed on the 'subject's' mind in the deep state is a *command*, which he is to execute 'on waking,' he will execute it as soon as he returns to the alert state; or, if allowed to work off his trance in natural sleep, he will usually perform the act on normal waking; but, if the act has been performed in the alert state, he will have no recollection of it when brought to his normal state.[1] Such obedience is, however, no true exception to the rule that psychic memory of ideas does not extend from one state to another, any more than in the case above noticed where a 'subject' obeys a command fixed for some distant hour: he feels an impulse but does not remember its source. A singular

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[1] After what has been said above, it will be readily understood that performance in the alert state of commands given in the deep, and remembrance of impressions from one alert state to another with a deep state between, are liable to be represented as performance or remembrance *on waking*—*i.e.*, on *complete* waking into the normal state—owing to the ease with which the alert state may be confounded with the normal.

point in connexion with this obedience is that it seems apt to fail in cases where a vivid and interesting idea is suggested at the same time as the command. Thus several 'subjects' who were told in the deep state that a fire had broken out at home, and that they must go and help to put it out, on being recalled to the alert state sat without moving, and denied any impulse to do anything. The idea probably produced a strong mental picture, which, in disappearing with the change of state according to the rule above given, involved the further disappearance of the sense of obligation.

(8) Obedience also fails in the following case. If a command has been imposed in the deep state, and the 'subject' is woke into the alert, but then, before he has time to perform it, is put under a delusion—this will *suspend* the performance of the act. Thus, a youth who had been told that he was to put on his hat and begin reading the newspaper, and had then been roused, was on the point of carrying out the command, when he was suddenly told he was a chicken. He instantly went down on the floor and began to cluck. He was then allowed to lapse into the deep state, and again brought out of it: he now at once performed the order. In this particular instance the order was not *remembered* in the second deep state, though carried out on emergence from it; the delusion had altogether obliterated it, as far as psychic memory was concerned. But this feature seems unsymmetrical, and was found not to be constant—the delusion as a rule having no effect beyond the particular sort of state in which it is induced.

Such in briefest outline is a sketch of the conditions of memory connected with hypnotism, so far as my own observation has gone. Brief as it is, it may perhaps suggest matter of reflection as to theories which assume hypnotism to be a state of mere unconscious automatism, on the ground that no true memory ever exists of what happens in it.

VI.—CRITICAL NOTICES.

The Principles of Logic. By F. H. BRADLEY, LL.D., Glasgow; Fellow of Merton College, Oxford. London: Kegan Paul, Trench, 1883. Pp. xvii., 534.

Mr. Bradley's work comes very opportunely. It is a characteristic feature of much of the best philosophical work of the present time that it consists in the main of revision of fundamental principles. A period of eminently constructive work lies behind us, and it is not impossible that much of the present stir may signify only the process of coming to understand what has been done. But it is true now, as at all times, that a philosophic view is only to be attained from one's own position, and that a comprehensive philosophic method can only become living and fruitful if it connects itself and is penetrated with the thoughts of the present. There is no simple tradition in philosophy and, if a method or system is accepted, the ground must lie in the fact that its leading idea has proved itself capable of expanding so as to cover the new aspects under which the perennial problems have appeared.

It is but natural that the process of scrutinising first principles and testing them by application to the great body of questions that has always formed the material of philosophy should appear, when regarded from a somewhat external point of view, like a chaos of disjointed and mutually opposing tendencies. Certainly the present state of the study of Logic has this appearance. If one takes only the representative English writings in that department, one cannot but be struck by the apparently boundless diversity of view in regard to every matter of fundamental importance. Province and method of the science, auxiliary principles with which to make the approach to logical doctrines, theory of the doctrines themselves—in no one of these points is there anything like an established view, a common basis. It is not many years since one might have said that, on the whole, putting aside the merely historical teaching of what is erroneously entitled the Aristotelian logic, English writing on the subject might have been fairly distributed under two main heads: on the one hand, a purely formal logic, basing itself, though perhaps unwittingly, on an extremely imperfect psychology, supporting itself by appeal to the high authority of Kant, and claiming to have effected, if at a cost of rejecting the most interesting questions, a purification and scientific limitation of the sphere of logical discussion; on the other hand, a general theory of knowledge, likewise involving much disputable psychology, but rightly claiming to represent more truthfully than its rival the actual process of thought as exemplified in scientific work, and so extending its boundaries as to be able only by arbitrary refusal to reject the deeper questions inevitably raised by any discussion of the nature of knowledge. In a multiplicity of ways, complete dissolution of the one, and partial dissolution of the other of these apparently compact doctrines has been brought about, and now the state of Logic is like that of Israel under the Judges: every man doeth that which is right in his own eyes. Even when a writer is aware that fundamental difficulties lie in the way of the view upon which he is proceeding, he claims the right to act as did the prudent divine, to look the difficulty in the face and pass on. The reader is perplexed by continual references to a distinction between logical and non-logical, a very phantom on which he can lay no hold, but which in some strange fashion appears to regulate his author's proceedings and to extricate him when any formidable danger is at hand. Each *Logic* presents some new arrangement of material, some fresh classification of notions, judgments, and the like, some novel way of getting over an old familiar stile, but it is rare indeed that in any such treatment a really vigorous effort is made to show the grounds for all that is advanced and so allow the reader to form what our German friends call an objective opinion.

Affairs are no better, perhaps to some they may appear worse, among the German logicians. In that speculative domain, *Logics* swarm as bees in spring-time. Many of them, it is true, do not aspire to more tnan merely academic honours; they are text-books from which the reader may learn a little, and by which he may to some extent be disciplined in thinking. But, these apart, there have been supplied by German writers within the last few years quite half-a-dozen treatises of a much higher order, comprehensive, elaborate, based on principles of some sort, and each giving an altogether individual and new reading of the fundamental logical processes. He who endeavours to extract from the *Logics* of Lotze, Sigwart, Bergmann, Schuppe, even if he does not extend consideration to the somewhat earlier but yet living works of Ulrici, Trendelenburg and Ueberweg, a systematic representation of logical doctrines, has before him a task to which the labours of Hercules were simple. He will doubtless be able to discover that in some fashion all are treating of the same fact, whether it be described as thought or knowledge; more of agreement than this he will hardly find. In the mass and in detail, each treatment pursues its own way, and supports itself by a more or less explicit reference to something else, whether psychology, or metaphysics, or common sense, or philology, or anthropology, or what not. Classifications and distinctions are introduced, on grounds sufficient or insufficient but invariably diverse, and thus, in so cardinal a matter as the distribution of the forms of judgment, we are presented not only with such rearrangement of the comparatively familiar types as indicates a novel point of view, but with a variety of new forms, substantial and accidental, descriptive and explanatory, substitutive, co-ordinative, subsumptive, &c., the number of which seems practically indefinite, and to be determined merely by the extent to which current modes of speech have been taken into consideration by the writer. The limits of the subject as a whole are equally indeterminate. Inquiries rejected by some are admitted and treated as fundamental by others; the ground of rejection or inclusion appearing really to be whether or not the writer has handled elsewhere or proposes to handle elsewhere these problems.

Chaotic as are the phenomena on which an opinion with respect to Logic has to be based, the general character of that opinion can hardly be matter of doubt. This turmoil of conflicting views is a most hopeful sign. For it indicates that we are beginning to form a logic which shall in some way represent the laws and methods of our thought, and that the stage of preparation, the attainment of some more precise conception of what is truly the function of thought, has been reached. We have, one would trust for ever, given up the conception of thought as a mere formal activity, dissevered from the body of that which makes up our knowledge, indifferent to content, and obeying only the law of one and two, of Identity and Difference. Probably no theory of thought has ever been so empty and so destructive of genuine thinking as the Formal Logic, miscalled Kantian, which endeavoured to proceed upon that basis. Really, that logic, taken strictly, must resolve its whole contents into one simple, practical maxim: 'Let thinking be consistent with itself'. Whatsoever else it contains must come from without, in the shape of psychological propositions regarding the elements of thinking or metaphysical assumptions regarding the conditions of what is thought. But, though we are perhaps able to see how futile is the purely formal logic of thought, there is sufficient evidence supplied by our current logical works that we have not yet succeeded in marking off logical discussions proper from general psychology or grammar or merely popular thinking. Even where the view is taken that Logic is a real theory of knowledge, an attempt to unfold completely the processes and laws by which knowledge is formed and systematised, there is an almost constant confusion between the psychological and the logical analysis of knowledge. Knowledge being confessedly a subjective affair, a matter of mind, it is instantly assumed that the same predicates which apply to facts of mind regarded as such are to be found and are operative as logical peculiarities. The doctrine of notions, *e.g.*, tends to become a mere receptacle for psychological discussions regarding the modes of forming ideas, their kinds, and the properties of each class—subjects no doubt of psychological interest, but not truly involved in the logical inquiry. The doctrine of judgment is confused by having imported into it a whole mass of disputable matter regarding the nature of belief, or conviction of reality, and theories of the judgment, which are almost as numerous as treatises on Logic, turn for the most part on psychological differences. Only a vigorous effort to determine generally the fundamental characteristics of the points of view from which Logic and Psychology respectively contemplate knowledge, or a detailed criticism of the several doctrines with this general aim in view, can aid us in coming to a really fruitful decision as to the function and scope of logical science.

It is as making a large and powerful contribution towards this end that one hails Mr. Bradley's work. He does not profess to work out in systematic completeness a doctrine of logic, but, partly by polemical discussion of views, partly by presentation of results based on a more sound and penetrating analysis of the function of thought, he has not only cleared the way of much that for long has been an almost insuperable obstacle, but has also drawn attention to the real nature of logical problems and raised the discussion of them to a platform indefinitely higher than that occupied by our current logical thinking. His work is ✓ not one of which it is easy to give any brief and connected account, and the difficulties of a reviewer are somewhat aggravated by the peculiarities of the author's style and method. In a matter of this kind, no doubt, much must depend on the individual's turn of thinking, but I should fear that some part of the good effect that ought to be produced by Mr. Bradley's work will not be realised because the reader will fail to seize the leading idea of the whole. The discussion grows in complexity as it is developed, and partial views are taken up into and superseded by the more comprehensive solutions. But there is throughout implied a method of regarding the whole business of thought that is not brought with sufficient clearness to the front, and the point of many isolated treatments may in consequence be missed. Mr. Bradley has chosen his own way, and has worked towards a theory of judgment and inference, by taking up, comparing, setting against the current teaching, and carefully sifting empirically selected types of judgments and reasonings. Such a method has its advantages for teaching-purposes, but it is apt to mislead unless the underlying principles which guide the whole discussion are clearly discerned. Mr. Bradley hardly brings these forward into sufficient prominence, though he might well have done so, and it requires a long-breathed reader to accompany him through his devious course. Perhaps this one complaint may connect itself with the remark in Mr. Bradley's preface that critics of different tendencies may object that the treatment contains too much or too little metaphysics. I cannot think that Logic as a whole is in any way independent of Metaphysics, though I fully admit that, as metaphysics covers a multitude of problems, it is not necessary that into every section all the rest should be dragged, nor do I imagine that the occasional distinctions drawn by Mr. Bradley between logic and metaphysics indicate a contrary opinion. What is alone of importance is the ultimate view of reality and thought, which is common to all such problems and binds logic and metaphysics into a unity. I do not find that Mr. Bradley makes the view on which he proceeds clear, and it appears to me that the force of many of the discussions, in particular that with which the book closes, on the validity of inference, is weakened by the want of some definite statement.

Mr. Bradley begins his inquiry with the treatment of the central problem of logical theory, the significance or import of the Judgment, and to this the whole of Book i. is devoted. Book ii. begins the discussion of Inference, and in its first part, expounds certain general types and principles of reasoning as substitute for the rejected syllogism. The second part of the Book is entirely critical and is devoted to an examination of the doctrine of Association with its natural sequels, the idea of reasoning from particulars and the Inductive methods, and to an appreciative though hostile review of Jevons's Equational Logic. Book iii. resumes the discussion of Inference, brings forward in the first part the main processes in which the essential characteristics of inference are to be detected, and endeavours to reduce these to their most general expression, and in the second part handles the ultimate problem, foreshadowed throughout all the discussion, of the relation between logical truth and real, objective connexion. The work, it will be seen, is at once comprehensive and has a certain systematic idea in it. Apart from the main inquiry, moreover, it abounds in good thinking, and no reader can fail to derive benefit from the acuteness with which isolated questions of psychological or metaphysical interest are handled. In truth, one is somewhat embarrassed with Mr. Bradley's riches, and would feel inclined at times to wish that he had pruned his work more closely. A little dissatisfaction is inevitable when a promising problem is only hinted at, even though the glance given be one of undeniable acuteness. The frequency with which Mr. Bradley is compelled to make brief excursions into psychology and what he chooses to call metaphysics, and the importance of the relative matters, lead us to desire that he had substituted for much occasional disquisition one serious and careful statement of the way in which he regards thought as subject of psychological, logical and metaphysical treatment respectively. Such a statement is called for, not only in order to illumine his own results, but also as furnishing some guiding thread to his criticism of other views.

Naturally, it is in the theory of Judgment that a logician's fundamental point of view comes to the front, and the judgment is here handled with great elaboration and much subtlety. Experience must have taught every one who has made the attempt how difficult it is to express in other language the results a thinker has come to on a question of the greatest complexity, and I can hardly hope to have succeeded in adequately apprehending all that enters into Mr. Bradley's view of what constitutes a judgment. So far, however, as I can determine, his opinions would be somewhat as follows. Judgment is clearly a mental function, that is to say, it can only be understood as part of the complex in which thought and reality stand as opposed to, yet depending on, one another. But as a mental function, judgment is not to be taken as having the characteristics of a mental fact. However valuable may be the results of a psychological investigation of judgment as a fact in the mental life, however much light may be indirectly thrown on its logical nature by tracing the history and conditions of its appearance, the judgment as an element of knowledge, as the very mode of apprehending the real, is not simply a psychical fact, nor can the logical theory of judgment admit any determination of either idea or reality as these are treated for psychology. The constituents of the judgment, idea and reality, are equally necessary and require special definition. The idea is not the mental fact, taken as such ; it is part of the general content of the real as apprehended, separated off, fixed and used as a sign or symbol. Relatively to the real, which is substantival, the idea is adjectival. It is known as not itself the real, but it has significance, meaning; and this meaning is definitely referred to the real. In any judgment the idea or ideal content is connected with, attached to, the real, and the new relation resulting is perceived not to be made by the act of judging but to be independent thereof.

This highly general description of judgment can hardly be quite intelligible until it has received filling-in from contrast with opposed views and from consideration of the new features which complex experience introduces into it. But the view deserves warm recognition as an attempt to see through the thick veils of current doctrine and to seize the very essence of the act of judging. I do not know how far Mr. Bradley's illustrations and explanations of the term *idea* will throw light upon the meaning in which it is to be employed, for there is danger, despite his precautions, that the matter will be viewed psychologically, and this danger is perhaps aggravated by the attempt to give a genetic account of the way in which we may suppose judgment to have come about in a developing intelligence. There is a correlative danger, attaching to the term *reality*, on which a word will be said later. What one would desire to insist more strongly upon, is the essential conjunction of the two factors, reality and idea, in judgment, and the impossibility of taking these apart from one another. Popular thinking and psychological considerations tend constantly towards a contrast which is fatal to any theory of thought, and the employment of the term *idea* at all emphasises the contrast in a most hurtful manner.

Provisional acceptance of the general description of judgment enables Mr. Bradley to deal summarily with certain definitions of judgment, which err either by abstractly isolating the factors of the judgment or by accepting part for the whole. Such, *e.g.*, are all definitions of judgment as comparison of ideas, under which fall the current explanations of judging as referring to a class, as asserting identity of subject and predicate, or definitions which are merely adequate or inadequate psychological theorems. The criticisms here are to the point and felicitously expressed.

The discussion of the more abstruse questions regarding the judgment is led up to from the familiar doctrine that in a categorical judgment, existence of either subject or predicate is not asserted. 'All S is P' by no means forces the assertor to the admission that either S or P exists. S and P are merely ideal contents, and the judgment is no more than the statement that these are so connected that if the one, then the other as qualified by the first. Difficulties of this kind have recently begun to find their way into our current logical discussions, not without most hopeful results.[1] Clearly, if a solution is to come at all, and is to affect our distribution of logical judgments, it must be arrived at by a more profound consideration of the reference to reality that has appeared as a constituent of the judgment. Mr. Bradley advances to the task by contrasting in a general way the characteristics of reality and truth. The real is individual, self-existent, substantival. Truth on the other hand as having to do with the idea has no one of these characteristics. At first sight, then, it would seem that all truth is hypothetical merely, that it expresses only well or ill founded connexions of ideal contents in our minds. To come closer to the problem, there is introduced a provisional classification of categorical assertions, into (1) analytic judgments of sense, in which the given is merely described by one of its parts, (2) synthetic judgments of sense, in which the real of sense-perception, involved in the assertion, transcends what is immediately given, (3) those in which the real referred to is not a fact of perception. Scrutiny of these yields as result the important principles, that the real, even when taken in the sense of the real in perception, is not identical with its momentary appearance in perception, said momentary appearance, indeed, being an incognisable atom when taken in isolation; that the real, taken in more or less limited fashion, is ideally determined and directly referred to in the analytic judgments; that the real is indirectly referred to in synthetic judgments and is in them taken to be a continuous identity underlying the momentary phenomenal appearance. All such judgments are singular and appear to be categorical, to imply assertion of the real and of its elements as appearing in the judgment. Universal abstract judgments and hypotheticals, on the other hand, appear to assert merely necessary connexion of ideal content, and therefore point only to that in the real which is the ground of the consequence necessarily following. In the judgment, 'If S, then P,' we only assert that if the real be qualified as S, then it will present also the qualification P; we do not assert that the real is either S or P.

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[1] See, *e.g.*, Mr. Venn in *Symbolic Logic*, and Mr. A. Sidgwick's very thoughtful treatment of Abstract and Concrete Propositions in *Fallacies.*

But to rest content with such a view is to do grave injustice to the function of thought and to take an extremely imperfect and abstract aspect of the real as the whole of its significance. In the concluding sections of his second chapter Mr. Bradley advances towards a completer doctrine of the kinds of propositions. He has little trouble in showing that synthetic judgments of sense, which transcend the given, proceed on a principle not distinguishable from that which characterises the hypothetical, while analytic judgments of sense, though professing to give the real, do so only by a process of mutilation that is concealed by ordinary language but is fatal to their claims as absolutely and simply true. The terms of which the singular analytic judgment consists are universal, are wholly inadequate to express the concrete reality that is assumed. Such judgments are in fact the poorest and most abstract, giving the least expression of reality. Like all other judgments they do refer to reality, but they refer in the least definite, most hypothetical fashion. Abstract judgments, though on one side to be described as hypothetical, for they do not assert the existence of their elements, are on another side categorical, for they do imply a quality of the real and express the nature of the real as the realm of law, of systematic connexion of facts.

The negative judgment (ch. 3), Mr. Bradley regards as resting essentially on the recognised exclusion by the real of a suggested ideal determination. It implies, therefore, in all cases a recognised ground of exclusion, a positive element, though the nature of this ground need not be the same in all cases of negation. It is with satisfaction that one sees the blank form Not-A assigned to its true place (pp. 118-9, *cf.* pp. 147-8), but the whole tenor of this chapter and occasional special statements (pp. 109, 116) tend rather strongly towards the purely subjective interpretation of judgment which is the gulf always yawning beside the logician. The disjunctive judgment (ch. 4) is shown to involve a categorical assertion regarding the disparate members of a whole predicate, a hypothetical determination of the subject in reference to these disparates, and a general assumption or inference regarding the totality of the sphere which is divided.

Chapter 5, on the Principles of Identity, Contradiction, Excluded Middle, and Double Negation, is perhaps one of the least satisfactory, not because there is much in it from which one would dissent, but because it does not seem possible to discuss with any profit these principles from the point of view which the author is taking. If we regard judging as part of the subjective process of knowing, these principles have only relative significance. In their abstract and general form they can only be handled in what we think Mr. Bradley would call metaphysics. Not much is to be gained by treating truth in isolation, and so rendering the Law of Identity, *e.g.*, as that it merely expresses the abstractness of truth (p. 133), and, similarly, the dialectic method requires not to be compared with Contradiction and Excluded Middle when these are taken from the same point of view.

Chapters 6 and 7 on Quantity and Modality raise a multiplicity of questions. Want of space prevents my doing more than call attention to the excellent treatment of the general basis of probable reasoning which is given in ch. 7; to a general statement of the chapter I shall have occasion later to refer. The treatment of quantity raises two problems, first, that of extension and intension, second, that of the meaning to be assigned to universal and particular. In respect to both, the ordinary logic has accepted partial doctrines either from uncritical experience or from psychology, and Mr. Bradley's review, though probably not final, does good service in pointing out the unspeakable confusion that prevails regarding them. In his treatment Mr. Bradley is led to fall foul of two familiar doctrines, the one that some names are non-connotative, the other that extensions and intensions vary inversely. There is no doubt that the word 'connotation' has crept into logic without being able to yield a very satisfactory account of itself, and the modern use of it, dating doubtless from Mill's *Logic*, is entirely at variance with its earlier acceptation. From some points of view the distinction indicated by it becomes comparatively worthless, but I do not know that there is not a positive advantage in having a word which shall indicate the specific property of a sign when used to designate a class. The matter is mainly grammatical, not logical, but I do not think that it is at all necessary to identify connotation with *signification*, and so, because all signs have signification, to assert that they all have connotation. In like manner the doctrine of inverse relation between extension and intension has doubtless been applied in a wholly absurd and senseless fashion, but I imagine that in the long run the meaning of the doctrine will be found to rest on the peculiar relation between genus and species, and to result from taking abstractly a truth which would have a different expression when all the elements are taken together.

The current doctrine regarding extension and comprehension in judgments, if indeed there is any one doctrine on the subject, is sufficiently confused, and it seems hardly worth while to contrast with it in detail a new reading of these distinctions. If the definition of judgment adopted by Mr. Bradley be carried out, and the subject be taken not as the grammatical subject which appears in the verbal statement, but as the ultimate reality, then it is easily seen that, as implying ideal content, the judgment may be read in comprehension, while, as referring to the real, it may be read in extension. The distinction is hardly worth retaining. So the current doctrine of the quantity of propositions can be shown to rest on little more than grammatical peculiarities of verbal expressions, and critics have had little trouble in collecting empirical expressions which by no ingenuity can find reasonable explanation within that doctrine. Even in recent treatises the attempt to remodel the current teaching on quantity has hardly gone further than the introduction of distinctions between law and instance, abstract universality and concrete particularity, which are far from exhausting the matter. It is interesting to note the manner in which Mr. Bradley is driven to what he has called specially metaphysical determinations in order to effect an explanation of quantitative differences. Ideal content he appears to take as in itself universal: it has no quantitative determinations in it; but such content is only one element in the judgment. The real which is the correlative factor is shown to contain in itself the mutually determining features of abstract universality and abstract particularity, and to have therefore in its individual character the aspects of the universal—the identity of differences, and of the particular—the differences of this identity. The real is thus concrete, and may appear as either concrete universal, or concrete particular, or the individual which is the truth of both. And the ideal content is at once seen to be an abstract, just as worthless as the assumed atomic, ultimate, undetermined real. This is a most important result; it affects the whole doctrine of judgment, and enables us to see that the judgment is nothing but the way in which the elements of the only reality, the thing which is known or has its notion, are held apart from one another so that their mutual implication becomes apparent. If we please we may express this in a subjective fashion, and think of the process as that in which the real is determined by some idea in us; but such a translation is dangerous, as in all probability leading to an opposition of real and ideal which can have no place in the judgment *per se*. We may ask, and the question appears at the close of Mr. Bradley's work, what signifies this fundamental form of consciousness, the reference of knowledge to reality? how comes it that in our judging and reasoning we should at once seem to be merely reproducing in ideal fashion a reality that is completely given and at the same time supplying intelligible shape and substance for a matter that is relatively abstract and undetermined? But we must be careful not to prejudge the answer by introducing into our very notion of the judgment a reference to the abstract subject. That in the mental development of the concrete spirit judgment does come about through the opposition of perceptions, representations and the like, is a fact with which Logic does not require to concern itself.

In his Second Book Mr. Bradley passes to the consideration of Reasoning. Part of the Book is occupied with a polemical review of the theory of knowledge that has sprung from the psychological doctrine of Association of Ideas. With respect to this part I can only say here that I think Mr. Bradley most successful in his criticism, and that the chapter on Association is a valuable contribution towards a sounder psychology. The chapter on the Inductive Methods sums up from a higher point of view than has generally been taken the difficulties which most serious critics of Mill's *Logic* have felt in their regard. I am glad to find that Mr. Bradley takes a view which I have more than once expressed, that a false prominence has been attached to these methods as parts of the general doctrine of Inference supported by Mill. The chapter on Equational Logic is acute and ingenious. I imagine that the ground of Mr. Bradley's strongly expressed approval of a doctrine deviating so widely from his own is the conviction that the Equational Logic avoids at all events the numberless psychological abstractions of the ordinary and empirical logic and that it does make a vigorous effort to describe the modes in which we deal with the real in knowledge.

The Third Book continues the analysis of Reasoning and leads up to the final logical problems. I am well aware that no brief abstract can give a fair idea of the merits of the prolonged treatment of inference which is contained in these books, and that any attempt to compress the author's results simply casts into the shade the most interesting and instructive part of his work. The nature and forms of inference are handled with unwearied patience; such parts of the current logic as specially concern themselves with the foundation of the process are sifted and examined with minute and sometimes exhausting care; incidental problems receive brief and generally luminous discussion. A brief statement, moreover, must do injustice to the individuality of Mr. Bradley's method, which is such as, I think, will cause trouble to many of his readers. Mr. Bradley begins with a general view of inference which is later on altered in accordance with the distinctions arrived at in the course of the discussion. Regarding inferences as a process in which a new truth is reached from something accepted, he more formally translates these popular terms into the statement that an inference is an ideal construction resulting in the perception of a new connexion. A conclusion, as such, is not something merely given; it is reached. The accepted data are not isolated elements standing apart from the conclusion. In the process they are looked at, placed together, put in a relation to one another, ideally experimented on, and the result is a new relation perceived or the perception of a new relation. This general statement and the empirical examples which cohere with it lead to a very vehement polemic against our ancient friend the Syllogism. Mr. Bradley's grounds of quarrel are varied. He denies that schemata, general forms of valid inference, can be laid down: we can indicate only the general heads of relation within which by ideal experiment a new relation can be reached; we can indicate only the general principle which guarantees the possibility inferring under each category. Let the category, for example, be that of synthesis in space, as when I say 'A is to the right of B, and B is to the right of C'; then there can be indicated generally what kind of conclusion can be drawn and the principle of connexion on which the ideal experiment proceeds. The actual conclusion is perceived, seen to follow, and is not drawn by any rigid syllogistic process. Again, the syllogism has insisted on a major premiss, has viewed inference as being procedure by subsumption of a less under a more general. Not only is this hard to reconcile with the notion of inference as giving a new relation; not only is it quite out of keeping with the kinds of reasoning that occur constantly in experience, *e.g.*, mathematical construction and the like; but it altogether misconceives the relation between a principle of reasoning and the reasoning itself. A principle is not a general model or axiom by reference to which we reason; reasoning is a function which embodies a principle, is its living exponent. The two are not to be severed as they are in syllogism.

Dismissing, thus, the syllogism, and I think that, as that form is commonly expressed, we should agree in doing so though perhaps with milder language, Mr. Bradley notes the main principles which underlie his types of reasoning. These are identity within the elements of the ideal experiment and universality of one premiss—different aspects of the same. This identity, as previously in the case of the so-called law of thought, is taken with a genuine metaphysical significance, but here with a possibly misleading stress laid on the subjective side. The ground of reasoning, it is said, is the assumed real identity of that which is identical in ideal content; by which one might well understand the empty identity of the syllogistic form, that the middle term shall be the *same*. But we cannot take "ideal content" in this abstract sense, or regard it as in any way conditioned by the subjective process of thinking. It is significance or meaning, the real viewed in its essential character for thought as the union of universal and particular. The notion of correspondence between ideal content and reality is ambiguous and can only lead to a quite contradictory result. On this ground I am altogether disinclined to accept, in lieu of the syllogism, as necessarily arising out of judgment, the subjective processes of construction and the like on which Mr. Bradley expands himself. Nor do I follow him in his criticism of the syllogistic form as fallaciously attempting to draw a conclusion which must be left to the private judgment of the individual thinker. No doubt, the ordinary mode of expressing the syllogism—through concrete instances—is deeply in fault; no doubt, also, the class-idea on which the syllogism is made to turn is a veritable abstraction which cannot be regarded as the life of reasoning. But the concrete inferences, which are supposed to show the incompetence of syllogistic form and to be products of ideal experimentations, do in themselves involve the fundamental categories of universal, particular and individual of whose connexion the syllogism is but the form. That from these categories taken *in abstracto* inferences in concrete matter can be drawn is of course false, but it does not seem at all needful, in order to rescue the syllogism from oblivion, to insist that concrete thinking involves nothing more than these abstract categories. To reject the syllogism and to lay all stress upon these processes—construction, comparison, abstraction and the like—is to tend towards a purely subjective reading of thought, and to interpret the real as a kind of unknowable, foreign to thought, and only assumed, on grounds good or bad, to conform in some way to it.

With much care and elaboration Mr. Bradley in his Third Book works out the forms in which as it seems to him inference really proceeds, finally bringing them under the two rubrics Analysis and Synthesis, with indication of a third process (perhaps System) at the root of which lies the ultimate idea of the real as concrete individuality, unfolding itself in its peculiar forms into all the richness of existence. Such third process, which perhaps connects itself with the class of judgments not expressly handled, those in which the subject is non-phenomenal reality, is but hinted at, and the problem raised by it is treated in the concluding chapters from a narrower point of view. Briefly, the question there raised is that of the validity of inference—a many-sided question, the mere formulation of which in its true terms is philosophy at large. Mr. Bradley approaches it from various sides, discussing the relation of ground of knowledge to ground of existence, of formal validity to real truth, and finally of knowing as a whole to fact known. The difficulty, which no one will be more ready to acknowledge than Mr. Bradley himself, of coming to a perfect understanding with regard to the significance of the terms employed in so abstruse a discussion, and the dependence of any meaning on a more or less developed philosophic view, render it impossible to do more than remark on one or two of the aspect of the treatment here given. Mr. Bradley refers in his discussion to Lotze, and most readers of the *Logik* will remember the stringent criticism to which the claims of logical forms to real validity are subjected. But, at the same time, it ought not to be forgotten that such criticism rested on a metaphysical basis, on a theory of the soul and of psychical life, which rendered it absolutely necessary to regard logical forms as being mere products of the psychological mechanism *under certain presuppositions*. The whole difficulty which rises out of the very term 'truth' was simply cast back into the undetermined field of assumptions; for by these assumptions only can 'reality' have a significance for us. To follow in this track is to play with the term 'reality' and to be driven in the long run to the *caput mortuum* of the 'thing-in-itself'. I do not imagine that Mr. Bradley takes this track,—there is much in his book that so would be incomprehensible; but he undoubtedly speaks as if the nature of thought were such as to render reality altogether foreign to it, and sometimes treats phenomenal reality, momentary appearance, as if it had supreme worth and supplied a touchstone for the validity of reasoning. Knowledge is subjective, unquestionably, and it is not reality, simply because it is knowledge; but it is not on that account to be regarded either as a complex, accidental growth in the individual spirit, nor as doomed for ever to face its own insoluble problem. If we seriously treat knowledge as one of the modes of thought in and for which reality has any significance, we may come to see why there is continuously present therein the opposition of knowing and being, which, hastily interpreted and mixed with foreign considerations, might lead to an abstract severance of the two. Possibly, also, those minor queries, such as that relating to the cause and the reason in knowledge, would yield to an investigation of the true significance of the relative categories employed.

I am in doubt to what extent these remarks do injustice to Mr. Bradley's point of view, but the definition he has given of judgment, his interpretation of the modal categories, his development of the forms of inference, his frequent excursions into the psychology of knowledge, and his final discussion of reality, seem to me to imply a view hardly in keeping with the general tenor of the book, and possibly, if worked out, destructive to much that appears there. However that may be, there is this to be said, that from few books of recent philosophy is there more to be learned than from the present work. No reader can fail to learn much or to be stimulated in the best way by the abundant criticism that is bestowed upon logical and psychological doctrines; there is none who cannot benefit by the remarkable patience, circumspection and acuteness with which the author handles each logical question. That a work should be calculated to raise the whole standard of discussion in its subject is perhaps the highest praise that can be given; in my judgment such praise can be unreservedly accorded to Mr. Bradley's treatment of the Principles of Logic.

R. ADAMSON.

Body and Will: Being an Essay concerning Will in its Metaphysical, Physiological and Pathological Aspects. By HENRY MAUDSLEY, M.D. London: Kegan Paul, Trench, 1883. Pp. 333.

The main drift of *Body and Will* is decidedly polemical. Dr. Maudsley declares war against "metaphysicians" and all their works. The word Metaphysics is nowhere in the book formally defined, and one is disposed at times to regard it as a synonym for whatever the author happens to dislike. One or two important points, however, are clear. Metaphysicians, it seems, deny, and non-metaphysicians assert, that mind is a function of specially organised matter. The metaphysician proceeds by pure introspection, the non-metaphysician by the positive method of observation and induction. The metaphysical stronghold is the freedom of a spiritual will; if once this airy citadel be carried, the champions of "high mental philosophy" will be able to hold out no more. To this fortress Dr. Maudsley lays siege with all his powers. The attack is conducted from three separate quarters, represented by the three parts into which his work is divided. Part i., treating of "Will in its Metaphysical Aspect," discusses the difficulties involved in the theory of free-will, and the value of the arguments adduced in support of it. Part ii., treating of "Will in its Physiological, Social and Evolutional Relations," strives to expound and enforce the author's own view. Part iii., treating of "Will in its Pathological Relations," shows that we cannot choose but descend from the barren heights of speculation, when we have to deal with "mind in its concrete human embodiments".

The practical considerations presented to the reader in Part iii. seem to have had most influence on the author's own mind. In discussing the "metaphysical aspect," he is compelled, according to his own confession, to employ methods in which he has no "proper faith," and language to which he attaches no "clear and definite ideas". As a natural consequence, he is perpetually playing at cross purposes with his opponents. Indeed the whole discussion would seem to arise from a misunderstanding. It is a gratuitous assumption to suppose that the man of science *quâ* man of science has any ground of quarrel with the philosopher *quâ* philosopher. Only by becoming a metaphysician himself can the practical observer enter the lists against metaphysicians. And this seems to be precisely what Dr. Maudsley has done, without being very distinctly aware of it. With physiological facts which have been, or may be, inductively established he mixes up, as if they rested on the same kind of evidence, the most purely speculative theories. It will scarcely be denied that determinism is such a theory, no less than the doctrine of free-will. We cannot prove by the method of induction that all events are entirely determined, simply because we beg the question in assuming this method to be applicable to all events in all their aspects. This fallacy seems to vitiate Dr. Maudsley's argument in chapter 1, which may be stated thus in syllogistic form:—True doctrine is the explicit declaration of what is implicit in the constitution and experience of mankind; Within human experience causation is universal; ∴ The doctrine of universal causation is true. Here, according to the libertarian, the major premiss holds good without limitation, whereas the minor, though true of intellectual, is untrue of moral experience.

Of course, if it were possible to show that human volitions are capable of complete explanation and certain prediction, such a distinction would be no longer tenable. But has Dr. Maudsley shown this? Appeal is made by him to the admitted fact that statesmen, lawgivers, men of the world, &c., can frame general maxims concerning the conduct of mankind under given circumstances. But surely this falls short of what the case requires. Proof is needed, not merely of regularity in the average and probability in the particular instance, but of universality in the general law and absolute certainty in the special case. No such proof is forthcoming

It seems then that the testimony of practical human life does not make in Dr. Maudsley's favour so unequivocally as he is ready to suppose. The witness next examined is consciousness. We are warned at the outset, that we must not in this matter accept the hearsay report of metaphysicians. According to this report, consciousness tells us (1) that we have a will, (2) that it is free. Dr. Maudsley maintains that on both these points its evidence has been falsified.

He argues that consciousness tells us nothing of a will, on the ground that it tells us nothing of "an abstract will-entity". The entity referred to turns out to be identical with the immaterial Ego which wills. Metaphysicians try to show that such an Ego is implied in the unity of self-consciousness. This argument Dr. Maudsley first mis-states, and then demolishes. According to him the "claim put forward" is, that there must be "some bond of unity between particular volitions". Now metaphysicians generally maintain that in every single instance of conscious choice there is implied an active self which, recognising causes as reasons, weighs and compares them with each other. Dr. Maudsley proposes that we should substitute the material organism instead of this immaterial self. The metaphysician replies that the unity of consciousness is not of the same kind with the unity belonging to a complex whole made up of interacting parts. "But why not?" says Dr. Maudsley, and indeed he does not seem able to catch even a glimmering of the "why not". The reason which he puts into the mouth of his imaginary opponent is, that a unity perceived from within cannot be identical with a unity perceived from without. But this is a very inadequate statement of the case. For, though we infer that the Ego is a unity because it internally apprehends itself as such, the unity which it apprehends is not identical with the unity which we infer. The former is constituted by relations among perceptions, the latter is implied in the perception of relations. This view of the question has found much favour of late: yet it is entirely neglected by Dr. Maudsley. Again, admitting that mental and bodily unity exactly correspond, why should the *prius* be assigned to the latter instead of to the former? What if the mind be the thing-in-itself, and the brain only phenomenal of it?

On the whole Dr. Maudsley's polemic against the spiritual self cannot be considered adequate or conclusive. His examination of the testimony of consciousness concerning freedom is hardly more satisfactory. The point mainly insisted on is the incompetence of introspection to take cognisance of anything beyond the mental state of the moment. Now (1) this cannot be quite true, else no man could have any knowledge of his past history; (2) it makes no difference whether it be true or false, since every result is entirely determined by its proximate antecedents, which are continued into it in such wise that we cannot fix a point at which they cease and it begins; (3) though we cannot be separately conscious of each of the determining causes, yet we may become aware of the intervention of some new factor differing from any of them.

Chapter 3 considers the relative value of our knowledge of mental states through self-consciousness, as compared with "our knowledge of external objects through the senses." It is pointed out that in both cases we have immediately given a state of consciousness, and immediately infer, in the one case, external conditions of sensations, in the other a something which feels a sensation. "This something," we are told, "is far more difficult to know in itself than the external object, being no more than it within the compass of introspective intuition, and unlike it, not being within the compass of objective observation. It appears, then, that because the mental self is not given in introspection, but inferred, it does not come within the compass of introspection, whereas the "external object," though it is admittedly not given in objective observation, but only inferred, nevertheless comes within the compass of objective observation. This may serve as a slight sample of the indulgence which Dr. Maudsley lavishes upon his favourites. He evidently here identifies the "external object" with the physical conditions of sensation, and figures these as immediately present to the consciousness of an onlooker.

From this point of view it seems perfectly self-evident that consciousness is not the "function of a particular bodily structure" objectively observed. If it were, each man's conscious experience would be a "function" of a small portion of the conscious experience of other men. Accordingly, in order to give plausibility to his thesis, that mental experience is really bodily experience, our author unconsciously changes the meaning of the words, body, object, organism, &c. We are now informed that the same thing becomes objective or subjective, according to the special channel through which it is presented.

> "It certainly is impossible to think the transformation of that which we perceive objectively as movement into that which we are conscious of subjectively as thought; to say so is equivalent to saying that light cannot be heard or sound seen."
>
> Again (p. 100) "the same object—the functioning brain—must necessarily produce a very different impression upon the internal sense of consciousness from that which it produces on the sense of an observer."

It is but fair to ask who or what possesses this internal sense. It cannot be brain; for this is assumed to be, not the percipient, but the thing which produces the perceived impression. We seem compelled to postulate something very like what is commonly called a soul. Yet anything but this is the conclusion towards which Dr. Maudsley wished to lead us.

The latter half of this chapter treats of our belief in an external world. One of the arguments urged involves the curious assumption that, if all reality consists in consciousness, the reality of each of us must be, not in our own consciousness, but in that of our neighbours. But the point mainly insisted on as proving that we have as good testimony to the external world as we have to our own existence, is the "necessary synthesis of Ego and Non-ego." Now it is of course obvious that, if "Ego" and "Non-ego" mutually imply each other, and if the "Non-ego" is identical with the "external world," we cannot logically admit the existence of an "Ego" and yet deny the existence of an "external world". But it is equally obvious that the nature of the "external world" proved depends on the nature of the "Non-ego" with which it is identified. Unfortunately "Non-ego" is one of those words to which Dr. Maudsley attaches "no clear and definite ideas". Sometimes it is used by him as synonymous with "motor" as distinguished from "passive" consciousness, sometimes as equivalent to the so-called physical conditions of sensation. Whichever of these two meanings we adopt, it is evident that the "external world" proved will be one which no man ever dreamed of denying.

Before quitting the purely metaphysical division of the book, we must notice the author's own positive speculations. His fundamental principle is that mind is a function of the organism. When molecular movement becomes sufficiently complicated, thought is the result. If we inquire how movement, merely by becoming complex, gives rise to something which is not movement, a hint is thrown out that the analogy of chemical processes may solve our difficulty. Now this seems to be a suicidal argument. It is of course true that, for the chemist, there are properties in the compound, which cannot be accounted for as the resultant of the properties of the components. But these properties invariably depend on the peculiar quality of the effects produced by the compound on other things, and especially on our senses. Now what is this other thing, in which brain-movements, of sufficient complexity, set up such peculiar affections? We are again thrown back on the old-fashioned hypothesis of an immaterial principle.

The chief positive argument urged in favour of materialism is drawn from the existence of sub-conscious or unconscious mental processes. It seems to be assumed that these cannot be explained on purely psychological grounds. If a mental state is not "illuminated by consciousness," it must be an "insensible condition of body." Yet it is admitted that such states may be subjectively discovered.

> "Introspection itself, had it been thorough and faithful, might have opened this field of inquiry, but here again the all-sufficient abstract Ego stood like a forbidding angel in the way of patient and plodding inquiry."

Surely Dr. Maudsley is aware that introspection did open this field of inquiry, and that, so far from being the peculiar property of the physiologist, sub-conscious processes were first brought into notice by Leibniz, the purest of pure idealists, and have been most fruitfully studied by Herbart and Lotze, both strenuous upholders of the spiritual-substance theory. In fact it is not too much to say that bodily processes, as such, cannot possibly be sub-conscious: they are definite presentations to the consciousness of an external observer. This is just what is meant when it is said that they can be known objectively by observation and induction.

We have now followed out, in some detail, Dr. Maudsley's plea for materialism. We do not think he has made out his case. It must, however, be admitted that he has done his best for his client, omitting no important point, and marshalling his arguments in an able and impressive manner. Nevertheless most readers will turn with a sense of relief to the purely scientific part of the book. Dr. Maudsley makes most extensive use of the principle of evolution, but is quite aware that it is not an universal solvent. Good service is done in pointing out what it can and what it cannot accomplish in the way of explanation. Protest is with great justice entered against the tendency to substitute mouth-filling words for real knowledge, and vague generality for patient investigation of particular processes. Marked prominence is given to degeneration as an inseparable accompaniment of evolution. The author avails himself freely of the abundant store of illustration supplied by his special studies. Yet among these practical details Dr. Maudsley never once loses sight of the great end which his book is intended to fulfil. The phenomena of disease, insanity, idiocy are discussed, not for their own sake, but only to show that mind is purely the outcome of material processes. Even in the eloquent eschatological section with which the work closes, he cannot help making side-hits at his philosophical opponents. Among the signs of degeneration, "the solemn tolls of destiny" are enumerated—"metaphysical disquisitions concerning the reality of an external world," "scepticism as to the very foundations of knowledge," "elaborate introspective self-analyses." Let us hope that no weightier indications than these foretoken the coming doom. Truly it is an "awful contemplation, that of the human race bereft of its evolutional energy, disillusioned, without enthusiasm, without hope, without aspiration, without an ideal." Yet, according to Dr. Maudsley, this consummation is inevitably "forefixed," "foretokened," and "foredoomed." Our salvation is in the sun, and the sun must one day fail us. The last and highest products of evolution will be the first to decay, then "in deepening succession the low, lower, and lowest organisations." The disintegration of the social organisation will be accelerated by the "poisonous products of its own putrefaction." The aspirations which have done so much to nerve and cheer mankind, are "perchance" due to a "cosmic instinct of the matter of which we are constituted," and have no reference to the future of ephemeral human insects. We are fated to dwindle and decay, until all that is left of us be "a few scattered families of degraded human beings, living in snow-huts near the equator." Verily, of all follies, prophecy is the most gratuitous.

G. F. STOUT.

Les Maladies de la Volonté. Par TH. RIBOT. Paris: Germer Baillière, 1883. Pp. 177.

M. Ribot here follows up his interesting study of the Diseases of Memory (see MIND XXIV., p. 590). Both works are characterised by sound psychological knowledge, and by a wide acquaintance with pathological literature. Both illustrate the value to the psychologist of studying those disturbances of complex psychical processes which are brought about by disease. For if, on the one hand, the pathologist needs some knowledge of psychological principles in order to give an intelligible account of the phenomena which he studies, on the other hand, the psychologist gains a much more exact and certain knowledge of the co-operant factors in psychical processes by noting the displacements effected by disease. In point of fact such morbid conditions may supply him with just those 'negative instances' which he often needs so badly in psychological investigation.

What we call our willing or our sum of volitions is (says M. Ribot) a highly complex product, involving lower and higher impulses, and a certain relation of subordination (or control) among these, or, as M. Ribot expresses it, a "hierarchical co-ordination". It depends on a delicate balancing of forces which can be easily upset. These active tendencies may be arranged according to the order of the intellectual states which immediately precede them. All movement is of the reflex type, says M. Ribot, and every idea has a tendency to pass into movement, which tendency varies according to the intensity of the emotive accompaniment of the idea. Thus abstract ideas, though having this tendency, have it in the weakest degree. The co-operant impulses making up our volitions have two great sources. Of these the first is what M. Ribot calls character, and which might also be termed active or moral idiosyncracy. This is "the principal element, the effect of internal causes, which is not an entity, but the resultant of that myriad of states and of tendencies, infinitely small, of all the anatomical elements which constitute a particular organism". It is "the psychological expression of a certain organised body". The other source of the active tendencies is external circumstances, the environment, education, in the widest sense of this term. It follows at once from this view that there is no room for undetermined or unmotived action. Considered as a state of consciousness, choice is for our author simply a kind of affirmation or negation, which in itself has no more efficacy than a judgment which it resembles. The real motor is the sum of organised tendencies acting in a certain way. Indeed to one who, like M. Ribot, looks at a voluntary action as a phenomenon in time conjoined with organic processes, there is plainly no meaning in the expression 'undetermined action'. Such a view is necessary to one who is going to study the pathology of volition; and in its turn is abundantly illustrated by the results of such study.

M. Ribot begins by distinguishing between two great groups of pathological conditions. The will may be either uprooted or destroyed. The study of the first group precedes that of the second. Here, again, we can distinguish two main kinds of enfeeblement: (1) by defect of impulse; (2) by excess of impulse. The former variety is illustrated by the case of De Quincey, as well as by other cases distinctly recognised as instances of disease. There is still the form of volition, the 'I will,' but no corresponding impulsive force to give effect to the mandate. The patient affected by this debility often shows a clear consciousness of it, and an anxiety to carry out a resolve lest the executive power fail him. In these cases the intelligence and the muscular power are intact, and the incapability to act is distinctly due to absence of active impulse. As M. Ribot observes, disease here "creates exceptional conditions, unrealisable by any other means; it splits up the man, annihilates the individual reaction, respects the rest; it produces for us, as far as this is possible, a being reduced to pure intelligence". There is but one explanation of this state of things, namely a diminution of the process of excitation in the motor centres which is correlated with an enfeeblement of the sensitive or emotive element. As one of Esquirol's patients put it: "This want of activity was due to the fact that my sensations were too feeble to exercise an influence on my will". Here then we have the cause of the impotence in the suppression of the impulsive organic factor. M. Ribot considers that the patients who profess to feel an intensity of desire in this condition, are the subjects of an illusion. It is exactly this emotive or active element of desire which fails them.

Besides these cases in which there is a complete extinction of impulse, there are others in which there is a measure of active tendency preserved, but this is more than counterbalanced by the abnormal quantity of inhibitory force. Such are the instances in which a morbid timidity or anxiety at once arrests active impulse. A curious variety of this species of disturbance is fear of open spaces *(Platzangst).* In this condition the patient is terrified at the sight of an open space of any extent, as one of the larger 'places' of Berlin. Another curious variety of this disorder is the 'doubting mania' *(Grübelsucht).* The patient cannot resolve to act because he imagines a heap of improbable and often absurd contingencies. This state of nascent and instantaneously inhibited impulse is characterised by an exceptional degree of the phenomenon known as the consciousness of effort, about the real nature of which the author makes some suggestive remarks.

The next chapter deals with the second class of volitional disorders, those arising by excess of impulse. Here again are two subdivisions; for the carrying out of the impulse may (1) be instantaneous and automatic, apart from consciousness, or (2) occupy some time, involving a full measure of consciousness, and a conflict more or less prolonged. The first class of cases is typified by the instantaneous following out of an impulse to say something disagreeable or obscene, sometimes observable in hysterical patients. Here the higher centres of the brain are disabled, and so their inhibitory action on the lower centres disappears. Such impulsive actions answer to the energetic reflexes of a decapitated animal. In the second class of cases the patient is aware of the sudden access of a powerful impulse, *e.g.*, to a homicidal act, and feels his inability to resist the torrent, sometimes asking aid of others. M. Ribot discusses the question whether this last variety of disturbance of the normal ratio between impulse and rational motive, the lower reflex and the controlling activity of the higher centres, is due to the weakening of the latter or to the strengthening of the former, and is inclined to think that in different circumstances sometimes the one and sometimes the other is the cause.

In a special chapter the author deals with enfeeblements, congenital and acquired, of voluntary attention. Here we have the counterparts of disturbances of voluntary action, which fact by the way serves in an interesting manner to illustrate the close parallelism between voluntarily attending to a thing, and voluntarily doing a thing. Thus in some cases there is an exaggerated intellectual activity, a superabundant flow of images so that the power of intellectual control is baffled. In others, again, there is a want of the energy implied in the act of concentration. M. Ribot argues that voluntary attention is nothing but "an artificial, unstable, and precarious imitation of spontaneous attention". The real force in attention is feeling, and when this fails attention flags. Here then, too, we find that the voluntary is based on and rooted in the involuntary.

The next chapter is headed "The Reign of Caprices". It deals with that condition of instability or constant fluctuation of desire and purpose, which presents itself most distinctly in the case of hysterical patients. Here the conditions of volition, of choice, are almost entirely wanting. There is no combining, no co-ordinating: the active mind is reduced to a chaos of disconnected impulses and desires. The physiological ground of these disorders is probably a disturbance of the organic functions, of general sensibility, mobility, &c.

The review of the phenomena of volitional disease is completed by a reference to that condition of perfect annihilation of will and of action as a whole, which shows itself in ecstacy and in somnambulism. In these conditions we see the tendency of contemplation or of deep reflection to inhibit action, which is observable in normal life, fully realised. This state of mind, so well described by one of its subjects, Saint Theresa, involves a suppression of feeling and of active impulse. Pure ideation, commonly of a very abstract character, sums up the psychical condition. The absence of all motor impulse in the case accords with the fact, noted above, that as ideas become general or abstract their tendency to initiate movement lessens. With a brief reference to the phenomena of somnambulism the author brings his interesting study to a close.

JAMES SULLY.

Abriss der Sprachwissenschaft. Von Prof. Dr. H. STEINTHAL. Erster Teil. Erste und Zweite Abteilungen. Berlin: Dümmler, 1881. Pp. xxv, 496.

One cannot but wonder at the apathy displayed by the English school of psychology toward the remarkable contributions of the Herbartians, and more especially of Lazarus and Steinthal, to comparative psychology and the science of language. The author of the present work is one of the most vigorous of German writers. Prof. Pott has somewhere said of him that he delights in putting the edge of a razor on his sentences, and none can doubt that he is rich in trenchant, pithy phrases. By most philologists in this country, and even in America, he is looked upon as a "mystic," and the general impression seems to be that, whatever his worth as a psychologist, in the realm of language his researches are of singularly little value. This opinion has arisen solely from an inadequate appreciation of the nature of the issues involved in the study of human speech.

In this *Outline of the Science of Language* we miss the 'dithyrambi' of the earlier works, which used to leave the impression that the author must everywhere have the consciousness that everything was begun, nothing completed. Throwing his powers into the stream of the evolution of universal mind, Steinthal has created a new organ of psychological analysis, the value and scope of which will be differently estimated according to one's personal equation. Those who think that language is too gross a medium for a clear and exact analysis of psychical processes, may well be content with the abstract formulæ which are here turned to such good account. At the same time it is interesting to note that Steinthal's coadjutor, Prof. Lazarus, neither uses mathematical formulæ nor those of chemistry, that, in fact, though he admits the possibility, he altogether denies the necessity of applying mathematics to psychology.

At the outset we must notice Steinthal's definition of philology. In the philosophico-philological treatise *De Pronomine Relativo*, which was written in 1847, he had said: "Itaque una viri doctissimi atque clarissimi Böckhii definitio mihi videtur recta: *philologiam esse cogniti cognitionem*". Since then he has been led to modify his acceptance of the formula "Erkenntniss des Erkannten," because it fails to adequately mark off philology either on the side of philosophy or on that of natural science. Nor does it accurately define philology in itself. Setting aside the false antitheses in Böckh's *Encyklopädie und Methodologie der Philologie*, Science, he says, is—

I. Formal and *a priori*, ... Philosophy:
  (1) How am I to think? , ... Logic and Metaphysics.
  (2) How am I to act? . . . . . . Ethics.
  (3) How am I to create artistically? . Æsthetics.

II. Material; the object is:
  (1) Nature, ... Natural Science and Mathematics.
  (2) Mind, ... History (or Philology) and Psychology.

From this it is plain that philology is defined as history. Kant defines as different but related concepts, polyhistory, polymathy, pansophia, philology, *humaniora*, and the *belles-lettres*. But we must not suppose that he meant to designate real sciences by these names. Steinthal makes the distinction between the philological and scientific view of language partly from abstract or logical considerations, and partly because it accords with the division of labour among linguistic students. Logic teaches us that every concept has a content and a scope. The definition of a concept has only to give the content and not the scope. Not that the scope of a concept is immaterial, only it must be the outcome of the content. Now, is this definition of philology as history one containing a scientific content from which its scope may be deduced? We venture to think it is, though it is not likely to find favour with English students, who have been accustomed to look upon philology either as a systematic study of the classical authors or as identical with the science of language. "To the eye of the student of language what have Turkish, Persian and Arabic in common? Nothing. But those three literatures are comprehended by Muhammadan philology. And in Buddhistic philology quite heterogeneous elements are united. In a word, history unites what nature may have separated."

Mental life goes back further than historical, although to have historical development is an essential characteristic of the mental. There are tribes and times and relations which remain outside of the historical movement. Philology only embraces historical life. What lies beyond is the province of the Science of Language. Now, where language oversteps the bounds of philology, it enters the province of psychological ethnology. There is undoubtedly a mental life which is not historical. Tribes without culture and history have language and religion, and the life they lead is one ordered by mental considerations, as marriage, work, law, authority, &c. They are therefore neither mere objects of natural science nor objects of philology ; hence, by the side of history we have ethnological psychology. And as the investigation of external nature has its rational basis in mathematics, physics, chemistry, and physiology, so history (philology) and ethnology find the means for understanding the causal, regular relations of mental facts in psychology.

As regards the relation of grammar to logic, it has been supposed, from Plato to the present time, that language is identical with intelligence, *i.e.*, that speech-sounds are nothing more than the products of intellectuality itself, intuitions, concepts, thoughts. The investigation of the grammatical categories, begun by Plato, was continued by Aristotle and brought so far to an end by the Stoics that they at least found out all the categories. But not only were these used by the Greek philosophers in the service and to the advantage of dialectic and logic ; they were in fact to them dialectical or logical essences. Nor did the Schoolmen or even the men of Port-Royal get beyond this ; accordingly the grammatical forms of language were looked upon as the embodiment of the general forms of logical thought and of general intuition. To such length has this doctrine of the unity of thought and speech been carried that, as might have been expected, K. F. Becker's view of the human *logos* giving itself a sensuous reality in language, just as the idea of life realises itself in the organic body, has been opposed by Schleicher and Bleek, according to the materialistic tendency of our day, with the view that the content of language, the mind or thought, is the function of the sound.

But, what is the real relation of grammar to logic ? Is the position upon which the derivation of grammar from logic rests a tenable one ? Here, again, we cannot but agree with Prof. Steinthal. With characteristic skill he argues that logic is a purely critical and formal science, which, as mathematics, makes use of abstract algebraic formulae for the statement of its propositions, whereas grammar is an historical science which deals with definite, real forms. Were the single parts of speech an embodiment of the logical categories, it would necessarily follow that we should find them equally developed in all languages. Such, however, is not the case. And if human speech were nothing more than embodied logic, and grammar were applied logic, how, having regard to the *unity* of logic, shall we account for the *variety* of languages? Logic, true science, requires us to think concepts and not words. What is right from the logical standpoint may be wrong from the grammatical, and *vice versâ*. For instance, the proposition 'The circle is quadrangular' is grammatically unimpeachable, but, from a logical standpoint, altogether false. On the other hand, the sentence 'Circulus est rotunda' is logically right but grammatically wrong. And, as regards subject and predicate, not only is their order to a great extent conventional, but the very idea of the distinction between subject and predicate is purely linguistic and has no foundation in the mind itself. Again, most logicians would deny that the modality of a judgment belongs to the copula, and yet it seems highly probable that in savage idioms, and notably the Sek'wana, the copula does express certainty, probability, and possibility at times past and present. Of course it is possible to make a distinction between abstract and concrete logic by saying that every language has its own logic, its psychologic. But, as Steinthal well says: "it is thoroughly logical and organic that language is not logical".

We have seen, then, that language is not so much a product as rather a function in mental production, that it forms a psychological category and that, hence, the general consideration of its essence forms an essential subject of psychology.

In considering the psychical content and its forms, the Herbartians find themselves unable to accept the definition of psychology so common amongst ourselves, namely, the science of consciousness, because the very fact of the 'narrowness of consciousness' implies a vast number of dim co-vibrating elements in any given psychical act. That is to say, in all psychical life the unconscious plays a most important part. Hence, as it embraces both the conscious and the unconscious, the designation *soul* as the subject of psychology is in every sense preferable. It is true that Herbart based his theory of the *Hemmungssumme* upon a doctrine of the soul's unity, but, in this respect, his disciples do not follow him. And, as regards the categories, it will hardly surprise us to find Prof. Steinthal asserting that they arise unconsciously in the history of man. "As the first animal-cell, so also every category or idea arose at a definite time: the cell at a certain time in the earth's history, the category at a given period in human history." Moreover, since intuition and concept only live in the process, the categories of the concept are the forms and valuation of its content, and at the same time the forms of the process of its formation. We may notice, too, a certain parallelism of the grammatical, logical, and metaphysical categories. Nominative, subject, thing (substance); verb (adjective), predicate, quality (accident); &c.

The question Prof. Steinthal then asks himself is: Is it possible, as regards the elementary psychical processes, to arrive at some real mental atomic theory? And the answer he gives to that question constitutes his real merit as an original thinker.

Here we must remember that the proper subject of psychology is not intuitions and concepts, but *presentations*. What, then, is the doctrine of the mechanism underlying mental life? In the eternal flux of matter and soul, nothing is stable but *law*, which directs the movements, and *form*, or the idea in which, however often they separate, the elements again unite. Psychologically considered, form is here understood to mean the phases of mental life, such as language, religion, art, marriage, &c., which are often called ideas. But, since form itself is subject to law, we must say that law is the only thing in the universe which is persistent. And law is nothing but a *definite and constant relation of movements*.

Now the laws of presentation are those of *persistence*, *attraction*, and *combination;* and, for the sake of clearness—not because it is essentially necessary—Prof. Steinthal seeks to express the psychical processes in formulæ. Thus, for the elementary processes we have: $A + A + A \ldots = A$, as formulating the psychical law of identity; showing that it is essentially different from that of physics, which is $A + A + A \ldots = nA$. The formula for the blending or amalgamation of ideas is: $A + A + A \ldots = A^n$. For reproduction, which is effected by simple association, the general formula would be: Granted the ligature $a' = b', c', d' \ldots$; and there is given in sensuous perception b; the reproduction is $b' + (c' + d' \ldots)$. The effected ligatures of psychical momenta become connected in two ways, either by one as a whole becoming connected with another as a whole (association and reproduction), or, as more often happens, by the fact that two ligatures are brought into contact because they have certain elements in common. This is called by Steinthal *complication*. "Every member of a series a, b, c, $d \ldots$ may form the beginning, middle, or end of one or of many other series; for no single psychical atom is so insignificant as not to stand in manifold relation to other atoms, and one can easily see that the concrete psychical creations are complications of many quite heterogeneous elements." *Complication* effects amalgamation, substitution, transfer and infusion of ideas.

Apperception may be defined as the movement of two masses of ideas toward each other for the production of a cognition. Respecting its formulation we have, as the formula for the simplest process, where P is the passive and A the active element: $P + A^1 = A^2$. From a logical standpoint the relation of the two factors to each other may be considered in four ways, namely, as *identification*, *subsumption*, *harmonisation*, and *creation*. The *identifying* apperception consists in the amalgamation of both elements, whereby the individual is apperceived by the individual. In the *subsumptive* apperception, on the other hand, the special is apperceived by the more general, the percept by the concept, the species by the genus. As regards the sciences we may say that the identifying apperception applies to geography and astronomy, and to botany and zoology, in so far as it is a question of recognising species. On the other hand, mathematics, comparative anatomy, and the science of language may be looked upon as subsumptive apperceptions. The third form is what is known as the *harmonising* apperception. That is to say, the various spheres of apperception stand to each other in an external relationship such as antithesis or indifference. For instance, some one has sustained a heavy loss: a beloved one has died; he says: I cannot yet grasp it, *i.e.*, apperceive it. He can most certainly subsume it, but cannot harmonise it with his emotion; he is still full of feelings, memories, thoughts, plans, wishes, which pre-suppose the life of the dear deceased. Lastly, we have the *creative* apperception, in which the apperceiving momentum itself is first created. To this order belong guessing, supposing, imagining, &c.

Of these kinds of apperception enumerated by Steinthal, it is remarked by Benno Erdmann, first of all, that they are defined according to the scheme of formal logic, whereas psychological considerations should alone have sufficed; and, secondly, that in consequence a really peculiar kind of apperception from a psychological point of view, which he calls the *determining* apperception, has been overlooked. Steinthal says that he certainly had looked to logic for the more immediate qualification of the kinds, as was clearly manifest from his using the word 'subsumptive,' but it was only after a purely concrete search he had done so. He would now suggest the following as the psychological background. The identifying apperception would rest upon amalgamation, but the subsumptive upon complication or concatenation; on the other hand, the harmonising would be based upon the harmony of the object to be apperceived with the dominant group of presentations under which it must be brought.

As regards the *determining* apperception it can only be coordinated to Steinthal's species in the sense of forming a genus by itself. For Steinthal's species of apperception are forms of *cognition*, whilst the *determining* apperception is what we generally call *understanding*. And just as cognition has its kinds or forms of apperception, so also has understanding. The determining apperception is not a simple one, but embraces differences, that is to say, the species of interpretation: the grammatical, real, stylistic, historical and individual. But criticism, the last and psychological form of interpretation, rests upon the harmonising apperception, *i.e.*, upon that of cognition.

Now, the science of language, though a mental science, adopts the method of the natural sciences, namely, the inductive and deductive method, which, psychologically, rests upon the subsumptive and creative apperceptions. Entirely opposed to this is the *casuistic* method of the mental sciences, which rests upon the harmonising apperception. Hence the results of the two methods are very different. Whilst the inductive and deductive sciences arrive at definite conclusions, the sciences employing the casuistic method (history, for instance) do not get beyond enthymemata, *i.e.*, higher probabilities.

If we watch the building up of the inner world, we shall find it to be a real history of creation. The rise of sensation from feeling is a veritable 'And there was light'. But this is only the first day of creation. Feeling, sensation, and reflex actions are given; but *perception* has still to be learned. It is a well-known fact that we only see surfaces; to see bodies according to their three dimensions, to recognise space-relations, must be first learned. As sensation develops into perception, so the latter goes on evolving into the *concept* or *idea*. Hence the difficulty of characterising perception, *per se*, as a pre-linguistic stage. We can, however, be sure of this, that to primitive perception *self-consciousness* is lacking. Closely connected with this lack of self-consciousness is the fact that, at the stage of perception, there is nothing general but only what is individual. Our sensations are limited to single qualities; our perceptions to single things. There are no perceptions of species. And, as regards the animal soul, we can at all events predicate this of it that, inasmuch as that which is immediately present alone constitutes the subject-matter and content of the perceiving soul, animal consciousness must be limited to the knowledge of individuals, which cannot be comprehended and distinguished as species.

As regards the evolution of man's place in nature from the lower one of the animal, of an anthropoid, Steinthal thinks the evidence is not yet complete. His position is, shortly, this:—The evolution of language has been the most powerful means of raising human consciousness from that of the animal. From its very beginning, speech is a new organ of man. By this the effectiveness of his other organs, of the senses, of thought and feeling, is ensured and enhanced. But this high significance of language for the development of mind by no means implies that it cannot owe its origin to circumstances which, from a zoological point of view, are in no wise necessary, at least not all equally essential. Nay, we might even admit that the highly-developed mammal, as the dog or the horse, would produce speech if there were not hindrances. These indeed can be shown, and with their removal comes the rise of man.

Much seems to depend upon the upright posture which, as Darwin and Caspary have shown, might be won by constant practice whilst in the simious state. And Jäger has done well in laying stress on the fact that the upright position is indispensable for getting that mastery over respiration which is essential to speech. In speaking the breath is sent forth rhythmically. For this the muscles of the ribs and abdomen must be fully under our control, which is only possible with the upright posture, but quite incompatible with going on all fours. Hence only birds have a certain mastery over their vocal organs and a certain rise and fall of tones.

Thus if only man possesses the possibility of the free emission of the breath, he too will be the only one to have mastery over the vocal chords, to develop the fine muscles in the larynx which stretch, bring together, and separate the vocal chords.

That the skull and brain receive their more complete development with the upright posture can hardly be doubted. But this is important for language only in so far as the connexion of the sensor with the motor centre of speech, the reception of the word-sound by the ear, and the production of sounds by the organs, are established. Herein lies the faculty of onomatopoeia, which is wanting in the mammals, but is to be found in some species of birds. But, since even in the same species it is lacking in certain varieties and is found in others, it is not difficult to understand that it would be established in man with the better evolution of the brain.

And when we have in man an upright onomatopoetic mammal, we have in him the fundamental conditions for language, and thereby the conditions for the further gradual development of other conditions, the finer development of the larynx, finer auricular perception; in short, a more complete evolution of consciousness. This being once given, the complete development, by constant exercise during many generations, of the brain and of the whole head becomes easily intelligible.

Steinthal has always contended that the immeasurable difference between man and animal, which has existed as far back as we can trace, rests on only a small original difference, which, however, was of such a nature that it could increase to an almost indefinite extent. Formerly he thought that this primeval difference was made by the Creator, but he has since affiliated it to the theory of Development.

In considering the question of the rise of language we are at once met by the fact that primitive man accompanied all the impressions, the percepts, which his soul received, with bodily movements, gesticulation and articulate tones. The nature of the reflex action involved in the process is now fairly well understood. No psychical excitation would take place without a corresponding reflected bodily movement; to every definite movement of the soul there corresponded a definite bodily one, which at the same time was physiognomic and sonant. These actions indicate, in fact, the psychical excitations of which they are the reflex. But there is yet lacking the most essential element of speech, namely, the consciousness of this significance, the application of expression. Thus, the beginnings of speech are to be found in the *conscious connexion* of the reflected movement of the body with the excitation of the soul.

> "Thus stated, as the suggested analogy required, the question contains the important apprehension as regards the essence and origin of language that speaking rests upon understanding, that it is in itself understanding of one's own sound, that mutual comprehension is the creative act, the source of language. To speak is essentially and before all to understand oneself, to hear one's perception or desire from one's own sound. But since the percept, the subject-matter, understood from the sound is already consciousness, the beginning of language is the germ of self-consciousness. It is true there is not yet a self-conscious subject, but there stands something subjective as object in consciousness."

The link connecting sound and percept is *feeling*. That is to say, in so far as it is a reflex, there is attached to every simple, as to each more compound, sound-form a feeling which stands related to the feeling which is given with the reflected perception of the object. And this leads our author to accept as the basis of language *onomatopoeia*, which he defines as follows:—

> "Onomatopoeia is a certain likeness existing between the sound and the percept indicated by it. Only the thought that it is an intentional sound-painting must be put on one side or not be allowed to arise. We must never lose sight of the fact that it is a reflex, first of feeling, then mediately of perception, and finally, by means of this, also of the object; it is therefore a reflex of the effect of the object upon the subject. The influence of the object upon the subject is in the sound, sent back from the subject outwards. So that onomatopoeia may also be sound-imitation, if it is the reflex of sound-waves which impinge upon consciousness."

The onomatopoetic feeling never dies out: it is a psychophysical fact. No sensation carries with it so great an amount of feeling as that of hearing. Sight is nothing like so emotionally powerful. There are impure colours, and unharmonious colours: they are unpleasant. But only noises and discords are really painful. The ear is adapted to take in excitations which occur together as one total impression and to refer to each other those which follow in the sequence of time and thus to form an ideal whole. In so far as it abolishes space and time, the ear is more ideal than the eye. Hence, when Lazar Geiger says against the present theory:—

> "Language has sprung not from the ear, from sound, but from the eye and light. It was not the lowing animal which, demanding a name, went forth to meet the man of early days; but the world with its riches reveals itself in forms and colours to the soul which is gradually maturing to apprehend its beauty."—

We may answer: the two phenomena are not excluding antitheses, nay, from the very evidence of language itself we find facts of sight and facts of sound named from the same onomatopoetic root. For instance, from √*b'l* we get *bloom (Blume)*, *bark* (φλοι-ός), *blood*, and *flow*, *flood (fluctus)*, *flêtus*, φλέδως, φλοῖσβος, etc. Similarly in Hebrew √*ṣâk̓ak̦* means both *to shine* and *to laugh*.

And it is not only or indeed so much in single words as in whole sentences that onomatopoeia is so powerful. In the well-known line from Homer's description of Sisyphus:

Αὖτις ἔπειτα πέδονδε κυλίνδετο λᾶυς ἀναιδής.

only κυλ is an onomatopoeia, whilst the masterly effect in Milton's

With hideous ruin and combustion, down
To bottomless perdition;

is produced without a single mimetic root. The same applies to Virgil's

Sed fugit interea, fugit irreparabile tempus.

"If then," says Steinthal, "the onomatopoetic feeling and the sound-reflex are an established fact, we may accept it theoretically or hypothetically as the principle of the original creation of language."

Hitherto we have been considering language as the pathognomic representation of perceptions. But how was the transition effected from the word to the sentence?

> "The onomatopoetic sound-reflex, because and as long as it indicates whole perceptions and intuitions, is a sound-gesture; it is only when it stands for a mere momentum of a sensuous intuition that it becomes a word, which first appears in the form of a root. But then the immediate connexion of the meaning with the feeling is necessarily broken, the onomatopoetic character of language disappears. The root is no longer onomatopoetic. Thus, where language first comes forward in its true individuality, where it wins its full intellectual character, it breaks through onomatopoeia; and the word in its true sense first arises with the form of the sentence, *i.e.*, simultaneously with the antithesis of subject and predicate, which soon becomes fixed for the difference in naming things and expressing states and changes. The logical character of a word seems to be decidedly antagonistic to its onomatopoetic origin. If it is undeniable that, in the later history of nations, many a word has become so phonetically changed that in sound it has come to onomatopoetically approach the object named, it is also probable, on the other hand, that, in early times, when the onomatopoetic principle was left, the appearance of onomatopoeia became obscured and avoided."

This second stage of linguistic development Steinthal designates as the *characterising*. The evolution of language itself is the cause that onomatopoeia is absorbed by the characterising inner form, and that then the etymon is lost in the third inner speech-form, or linguistic *custom*.

Respecting the formation of the sentence, much would seem to depend upon the fact that many objects may be included in one and the same perception; *suckling*, for instance, contains the woman and the child in *one* act. This phenomenon having once been fixed with the sound-reflex *då-då*, this sound could serve not only for the suckling *(filius)* and the woman *(fêmina)* the nurse and the grandmother (τήθη), but also for the particular organ brought into play (θηλή, *teat*), and would be both subject and predicate. Thus, the sentence *då dadå* would mean *filius fellat*, the suckling sucks. But since the same being is perceived in many ways, all of which may seem equally essential to it, the intuition (perceptual complex) of the same could be apperceived as well by the one as by the other. The same being that suckles has previously given birth ($\sqrt{}$*ga-ga*) and will bear again, it being her function to be the bearer (*γυνή*, *queen*). So that manifold expression was possible; and instead of the wearisome repetition *då dadå* one might say: the parent suckles, *ga dadå;* the suckler has given birth, *då gaga*.

Into the formulation of this process, space does not permit us to enter. The rest of Part I. is taken up with an account of the various pathological phenomena which occasionally arise in the function of speech; whereby the opinion expressed in some of Steinthal's earliest works, as to the threefold nature of the factors operative in the act of speech, receives confirmation. It has been found that the function of speaking is controlled by three centres, namely, the general centre of intelligence, the motor or sound-centre, which directs the bodily mechanism of articulation, and the centre for the psychical side of language. Part II. of the *Abriss* will deal with language in its historical aspects, and to that part all linguistic students are looking forward with the greatest interest.

H. M. Baynes.

VII.—NEW BOOKS.

[*These Notes do not exclude Critical Notices later on.*]

Mental Evolution in Animals. By GEORGE JOHN ROMANES, M.A., LL.D., F.R.S., Zoological Secretary of the Linnean Society. With a Posthumous "Essay on Instinct" by CHARLES DARWIN. London: Kegan Paul, Trench. Pp. 411.

The author in the present treatise (just come to hand) publishes only part of the work on Mental Evolution which he promised in *Animal Intelligence* (1882). As he found it necessary, from considerations of space, to publish separately his compendium of facts relating to animal intelligence before discussing the general question of mental evolution, so, for a like reason, he now puts off to another work the special question of mental evolution in man, which, the more he handles it, he finds growing upon him (as may well be believed) "in depth, width and complexity". In the present simpler division of his whole subject, he allots an exceptionally large space to the treatment of Instinct (pp. 159-352), "looking to the confusion which prevails with reference to this important branch of psychology in the writings of our leading authorities". In this part of the work are incorporated a considerable number of extracts from unpublished MSS. of Darwin; and the Appendix (pp. 355-84) gives "the full text of a part of Mr. Darwin's chapter on Instinct written for the *Origin of Species* but afterwards suppressed for the sake of condensation". The MSS. were given to the author by Darwin with the request that he should publish any parts of them that he chose in his works on Mental Evolution. The consecutive portion, after being read to the Linnean Society, is now published in its present form with the consent of Darwin's family.

Grammar and Logic in the Nineteenth Century as seen in a Syntactical Analysis of the English Language. By J. W. F. ROGERS, Inspector of Schools, Sydney. London: Trübner, 1883. Pp. xvi., 211.

This work consists of three parts: "Word-classing"; "Syntactical Analysis of the English Language"; "Structure of Propositions". Though in the first part, which ends in a commonplace classification of the Parts of Speech on the principle of "usage," the author has to remark unfavourably on more than one logician of repute, it is in the third part that the short-comings of the tribe are judged. Having made in his second part a more careful analysis of the various kinds of sentences than is current among grammarians, he is led on to maintain that it is an error of the logicians to make any distinction of the so-called copula from the predicate. This he does by way of a critical review of a series of statements culled from the writings of "Dr. Morell, Dr. Crombie and Rev. J. Earle, Dr. Sullivan, Archbishop Whately and Cardinal Newman, Mr. J. S. Mill and Mr. Grote, Dr. Latham and Mr. Hobbes, W. S[palding], Mr. Mason, Dean Mansel, Prof. De Morgan, Sir W. Hamilton and Herr Krug, the Rev. J. Balmes, Dr. Brownson, Aristotle, Aquinas". The list is remarkable alike in its inclusions and its omissions; the reason of the order and the grouping of the names must be sought in the treatise itself. Some of the author's criticisms are acute enough and it is not difficult for him to find inconsistencies both in the individual writers and in the collection of them; but he fails altogether to see the purpose that determines the traditional analysis, as carried out in the whole body of regulative doctrine with which it is connected. His own view of proposition remains devoid of all logical value, till he can show that it is of equal account for regulating the process of judgment or use of propositional forms, to say nothing of mediate reasoning. He may limit himself most profitably to the grammatical question.

Kant's Critique of Practical Reason and other Works on the Theory of Ethics. Translated by THOMAS KINGSMILL ABBOTT, B.D., Fellow and Tutor of Trinity College, Dublin. Third Edition, revised and enlarged. With Memoir and Portrait. London: Longmans, 1883. Pp. lxiv., 368.

The present edition adds to the contents of the second (enlarged) edition, which appeared in 1879, a translation of the General Introduction to the composite treatise *Die Metaphysik der Sitten* (why called in the translator's preface *Metaphysische Anfangsgründe der Sittenlehre?*) and of the Preface and nearly the whole Introduction to its second part (as first published) the *Metaphysische Anfangsgründe der Tugendlehre.* Mr. Abbott can now, perhaps, claim with reason to have given "the whole of Kant's works on the General Theory of Ethics," but when he reaches his fourth edition it might still be well to enlarge still farther by the addition of the body of the *Tugendlehre*, surpassing his predecessor Semple in the rendering of this as much as he has done in the other pieces common to their two attempts to present Kant's ethical doctrine in English; nor would it be amiss to throw in (with Semple) the Introduction to the *Rechtslehre* also.

A History of Eclecticism in Greek Philosophy. Translated from the German of Dr. E. ZELLER, Professor in the University of Berlin, with the Author's sanction, by S. F. ALLEYNE. London: Longmans, 1883. Pp. viii., 383.

Miss Alleyne, who began by translating (with the help of Prof. Goodwin) that section of Part II. of Zeller's great work which treats of 'Plato and the Older Academy,' and who afterwards successfully took up the whole of Part I. dealing with the 'Pre-Socratic Schools,' has now added to her achievement a rendering of that section of Part III. which is occupied with 'Eclecticism,' after the other section on the 'Stoics, Epicureans, and Sceptics,' already translated by another hand. The publishers again announce, as on the publication of the 'Pre-Socratic Schools' in 1881, that with the long-promised division of Part II. on 'Aristotle and the Elder Peripatetics,' still "in preparation," the English Translation of Zeller's work will be completed; but, as they have been better than their word by now adding the present section on 'Eclecticism,' so it may be hoped they will again extend their view and really complete the work with a translation, by Miss Alleyne's competent and diligent hand, of the second division of Part III. which includes the later Scepticism, beginning with the school of Ænesidemus, and the final effort of Neo-Platonism.

The World as Will and Idea. By ARTHUR SCHOPENHAUER. Translated from the German by R. B. HALDANE, M.A. and J. KEMP, M.A. Vol. I. London: Trübner, 1883. Pp. xxxii., 532.

Vol. XXII. of the "English and Foreign Philosophical Library" presents a translation of the first four Books of Schopenhauer's famous work, containing the whole direct exposition of his systematic thought. Two volumes, to follow, will complete the translation of the work as it stood in the third edition issued in 1859 shortly before the author's death; the

Appendix on the Kantian Philosophy leading in the "Supplements" to the four Books, which run (section by section) to considerably greater length than the Books themselves. At the same time, the translators promise to include an abstract of the earlier *Vierfache Wurzel* to which Schopenhauer is for ever referring. While they have aimed at being as literal in their rendering as was anywhere necessary to preserve the sense of the original, they have set themselves, on principle, to break up the lumbering German construction of sentences which even so comparatively good a writer as Schopenhauer inflicts upon his readers, and they deserve all praise for the general style of their most difficult work : some slips in detail (apparently due to haste) they have the opportunity of correcting at the next stage of their labour. Real intelligence has been brought to the task of finding due equivalents, in relation with the context, for the technical terms ; and the best word has certainly been chosen for the ever-perplexing *Vorstellung* when it is rendered by Idea (in the broad sense to which Locke gave currency).

Man a Creative First Cause. Two Discourses delivered at Concord, Mass., July, 1882. By ROWLAND G. HAZARD, LL.D. Boston : Houghton, Mifflin, 1883. Pp. xvi., 112.

In these discourses, the author, while reproducing in concentrated form the doctrine of his previously published *Freedom of Mind in Willing*, has also had in view the more general object of vindicating the fruitfulness of metaphysical science by showing (1) how it may be a means of making the same amount of intellectual power more effective, through the invention or discovery of better methods in its application ; (2) how it may achieve a yet higher—the highest possible—utility in creating, moulding and elevating the moral character.

Critique des Systèmes de Morale contemporains. Par ALFRED FOUILLÉE. Paris : Germer Baillière, 1883. Pp. xx., 412.

"L'auteur, qui vient de publier une 2e édition de son *Idée moderne du droit* avec des corrections et additions très importantes, publie aujourd'hui une critique complète des diverses doctrines de morale contemporaines. Il fait la guerre au dogmatisme sous toutes ses formes et transporte le 'doute méthodique' en morale. Kant a annoncé et commencé la *critique* de la raison pratique, de la moralité ; selon l'auteur, il ne l'a pas faite ou du moins achevée : l'auteur entreprend de pousser cette critique jusqu'au bout. Il admet tous les faits et toutes les lois mis en lumière par la morale utilitaire et évolutionniste, mais il croit qu' elle a besoin d'être complétée. L'auteur s' efforce d'introduire dans la morale évolutionniste sa doctrine personnelle des *idées-forces*, selon laquelle la conscience et l'idée sont des facteurs actifs de l'évolution, non de simples *reflets* passifs d'un mouvement accompli sans elles. Il reproche en outre à M. Spencer de n'avoir fait aucune place en morale à cette idée de l'Inconnaissable que l'auteur des *Premiers Principes* maintient cependant en metaphysique. Puis vient la critique du positivisme français, auquel l'auteur reproche de ne pas avoir ramené l'altruisme et l'égoisme à une unité fondamentale. La critique du néo-kantisme est très étendue. L'auteur reproche aux kantiens leur dogmatisme moral et fait une vive critique de l'impératif catégorique. Après avoir examiné en outre la morale pessimiste des Allemands, la morale spiritualiste française, la morale esthétique fondée sur l'idée du beau, la morale mystique et théologique, l'auteur conclut en esquissant sa propre doctrine. Selon lui, la moralité est fondée d'une part sur la *science* *positive*, d'autre part sur le *doute* et les *conjectures métaphysiques.* La fraternité n'est que la mise en pratique de la plus haute spéculation sur l'univers et sur le sens du 'mystère éternel'."

Examen critique de la Loi psychophysique, sa Base et sa Signification. Par J. DELBOEUF, Professeur à l'Université de Liège. Paris: Germer Baillière, 1883. Pp. 192.

Carrying out his plan of collecting his numerous minor writings under the general title of "Questions of Philosophy and Science," the author here follows up his *Éléments der Psychophysique* (see MIND XXXII. 620) with a reprint of various critical articles written in 1877-8. The volume is disposed in two parts—"Hering against Fechner" (pp. 1-69), and "Fechner against his Adversaries" (pp. 71-168), with supplementary notes. The first gives an account of Hering's famous onslaught (1875) upon Fechner's psychophysical law, the force of which Delboeuf concedes at many points, but which he repels so far as it impugns the mathematical expression of the law. In the second part he follows Fechner over the ground traversed in the work *In Sachen der Psychophysik* (1877), and then enters upon an independent discussion of the possibility of measuring sensation, concluding with a short exposition of his own "new theory of sensibility". His general judgment on Fechner's psychophysical doctrine is that, though its range is essentially limited, not extending beyond the domain of elementary sensation, its results are yet of the highest importance, so that no pains should be spared to obtain for it a formula admitting of strictly rational interpretation. To supply this is the special object of his own polemic with Fechner.

Logik. Eine Untersuchung der Principien der Erkenntniss u. der Methoden wissenschaftlicher Forschung. Von WILHELM WUNDT. Zweiter Band. 'Methodenlehre'. Stuttgart: Enke, 1883. Pp. xiii., 620.

The second and concluding volume of Prof. Wundt's *Logik* runs to even greater length than the first, which was reviewed fully in MIND XIX. on its appearance in 1880. As that corresponded with the first topic of the sub-title, 'Cognition,' so the present volume corresponds with its second topic, 'Method'. It consists of four main sections, with subdivisions: I. General Doctrine of Method (1, Methods of Investigation. 2, Forms of Systematic Exposition), pp. 1-73; II. Logic of Mathematics (1, General Logical Methods of Mathematics. 2, Arithmetical Methods. 3, Geometrical Methods. 4, The Notion of Function and the Infinitesimal Method), pp. 74-219; III. Logic of the Natural Sciences (1, General Foundations of Natural Inquiry. 2, Logic of Physics. 3, Logic of Chemistry. 4, Logic of Biology), pp. 220-477; IV. Logic of the Mental Sciences (1, General Foundations of the Mental Sciences. 2, Logic of the Historical Sciences. 3, Logic of the Social Sciences. 4, The Methods of Philosophy), pp. 478-620.

Geschichte der neueren Philosophie von Baco u. Cartesius bis zur Gegenwart. Von Dr. ALBERT STÖCKL, Professor der Philosophie an der bischöflichen Akademie in Eichstatt, Mitglied der römischen Akademie des heil. Thomas. 2 Bände. Mainz: Kirchheim, 1883. Pp. viii., 502; vii., 643.

The author intends this work as a continuation of his elaborate *Geschichte der Philosophie des Mittelalters*, of which the third and concluding volume appeared in 1866. It is the first attempt by a Roman Catholic to give a detailed exposition and appreciation of the whole history of modern philosophy, founded on direct study of the original sources. The author is emboldened to the task, which has seemed too perilous to others of his faith, by his conviction that the story of the utter collapse of all modern efforts to arrive at philosophical truth can only serve to bring again into repute the "Old-Christian" philosophy which grew up within the Church and attained its highest development in the thought of Thomas Aquinas. He divides the history into three periods: the first covering Bacon, Herbert of Cherbury and Hobbes on the one hand, and on the other Descartes and his followers, including Spinoza, with various counter-currents of thought (in Cudworth, Pascal, Huet, &c.); the second comprehending the new movement begun by Locke in England and carried out by the Deists on the one hand and by Berkeley and Hume on the other till Reid's reaction, with the contemporary movements in France and in Germany; the third taken up with the Kantian philosophy followed out into its various developments, and with the multitude of minor, dependent or independent, starts that have been constantly renewed down to the present time. With particular thinkers, like Hobbes, Spinoza and also Locke, who seem to the author specially representative of the modern spirit, he takes no little pains; the later German movement, from Kant onwards, is also followed out, even in some of its less familiar directions, with much care. The futility of modern philosophy appears not less manifest to the author in those thinkers who have sought to keep the interests of religion in view; indeed, some of his severest condemnation is reserved for those members of his own confession who, early or late, have adopted or sought to come to terms with the modern principles. Specially interesting, though brief, is his account of the recent revival in different countries of the Thomist philosophy, now again authoritatively proclaimed to be the sheet-anchor of Catholic doctrine. Scholasticism, he thinks, went down before the rise of modern thought for no other reason than because (after Thomas) it became so careless of literary form in presenting its truths to the world, at a time when the classical masterpieces were becoming known. It has now only to become again careful in this respect, to aim at general intelligibility and to incorporate what is true in the results of later natural science; and it will again prevail as triumphantly as ever. It should be added that Dr. Stöckl selects for exposition J. S. Mill, Darwin and Bentham as the important representatives of the latest English thought. Of living English thinkers he seems to have heard nothing, and his enumeration of those of the last generation is more curiously faulty than can be forgiven even to a foreigner's unfamiliarity and haste.

Das Princip der Infinitesimal-Methode u. seine Geschichte. Ein Kapitel zur Grundlegung der Erkenntnisskritik. Von Dr. HERMANN COHEN, ordentlichem Professor der Philosophie an der Universität Marburg. Berlin: Dümmler, 1883. Pp. vii., 162.

This is a special *excursus* in Theory of Knowledge or, as the author would rather call it, Critick of Knowledge (*Erkenntnisskritik*), a name which, he thinks, is not so likely as the other to give the impression that a merely psychological analysis of the apparatus of knowledge is intended instead of a philosophical investigation of knowledge as a fact, reaching its consummation in science as grounded on principles. His object is to show, in the particular case of the notion of infinitesimals, the import of Kant's category of Reality for knowledge. A general introduction (pp. 1-51) defines the problem and shows how the conception of infinitesimals gradually made its way into science; the properly historical consideration of the notion as developed by Leibniz, in relation to Newton, and as variously interpreted by later mathematicians and thinkers, follows (pp. 52-123); and the work ends with a series of deductions or applications (pp. 124-62). having present scientific or philosophic interest.

Unsere Naturerkenntniss. Beiträge zu einer Theorie der Mathematik u. der Physik von Dr. K. KROMAN, Docenten der Philosophie a.d. Universität zu Kopenhagen. Ins deutsche übersetzt unter Mitwirkung des Verfassers von Dr. R. Von FISCHER-BENZON. Kopenhagen: Höst, 1883. Pp. xvii., 458.

This work gained for the author a gold medal given by the Royal Danish Academy of the Sciences and has now been translated from Danish into German in order to procure for it a wider circulation. Though it might have had a somewhat different form had it not been written for the narrower circle of Danish readers, it is left in its original shape, because the author found that he had been really successful in composing a philosophical work on the foundations of science which men of science—the chief mathematicians of his own country—recognised as having a meaning for them. After a general introduction on the nature of cognition, it falls into two parts, dealing with *a priori* and with empirical knowledge or with the formal sciences (logic and mathematics) and with the real (physical) sciences. The author bases this division upon a thoroughgoing acceptance of the distinction between objects as *made* and as *found*. The firmness with which this principle is conceived and carried out invests the book with a real importance. It is a distinctly noteworthy contribution to that theory of science which has become for the time the first business of philosophy. Having written apparently (or first published) in 1881, the author declares that year to be not more memorable as the centenary of Kant's *Kritik d. r. V.* than as the date of Lotze's death, the two thinkers so brought together being in his view the greatest of German philosophers, if not the greatest that have ever lived; or of one thing at least he is sure, that, with the addition of Mill, they are to him the dearest names in philosophy.

Freud und Leid des Menschengeschlechts. Eine social-psychologische Untersuchung der ethischen Grundprobleme. Von G. H. SCHNEIDER, Dr. Phil. Stuttgart: Schweitzbart, 1883. Pp. xviii., 380.

The author, whose previous works, *Der thierische Wille* and *Der menschliche Wille*, have been reviewed in MIND XIX., XXIX., continues in this book his general task of making psychological application of the Evolution-theory and occupies himself specially with Feeling as it determines human conduct. He does not offer it as 'The Darwinian Ethics' which he has had in view, but rather as a preliminary investigation, in outline, of the fundamental ethical problems from the evolutionary point of view. The topics included are—Good and Ill as expression of the promotion and arrest of vitality; Sum of Goods and of Ills; Relativity of Goods and Ills; Direct and indirect effects of Goods and Ills; Goods and Ills as guides of action; Subordination of Goods and Ills; Causes of the chief Ills now afflicting civilised nations; Diminution of Ills and increase of Goods; Fate and Determination; Dying and living-on and continuance of Goods and Ills after 'death'; World-judgment and World-justice.

Zur naturwissenschaftlichen Behandlungsweise der Psychologie durch u. für die Völkerkunde Einige Abhandlungen. Von A. BASTIAN. Mit einer Tafel. Berlin: Weidmann, 1883. Pp. xxviii., 231.

The first of the seven essays here collected as an offering to the German Anthropological Society at its meeting of this year, is a careful argument (pp. 1-29), conducted in the author's eclectic manner, for placing psychology on an ethnic foundation if it is to satisfy the conditions of natural science. The subjective aspect of mind is, however, by no means overlooked. Two others of the essays are of philosophic interest—"Gedichtetes u. Gedachtes in naturwissenschaftlichen Controversen" (pp. 29-51), and "Religiöses u. Rechtliches" (pp. 156-211). The remaining four are more specially anthropological: "Die Andamanen"; "Aus Polynesien"; "Die Pubertäts-Weihe der Junglinge"; "Ueber die Oster-Insel".

Ueber das Princip der Organisation u. die Pflanzseele. Von. Dr. ENGELBERT LORENZ FISCHER, Privatdocent der Philosophie an der k. Universität Würzburg. Mainz: Kirchhein, 1883. Pp. xv., 144.

Der sogenannte Lebensmagnetismus oder Hypnotismus. Same Author and Publisher, 1883. Pp. viii., 119.

These works are written from the scientific point of view, but the author takes pains to show or suggest that his conclusions accord with Biblical and Catholic doctrine. In the first, he seeks to mediate amongst the four different theories of organic life which he distinguishes as (1) the idealistic or type-theory, (2) the vital-force-theory, (3) the soul-theory, (4) the mechanical theory; finding no other ultimate explanation of life than as brought to pass by the absolute First Cause *(Urgrund)* of all being, and supporting his views further by a special consideration of the facts of vegetable life, which evince the existence of the vegetative soul as an actual immaterial principle but not the proper cause of organisation. In the other essay, he follows Braid mainly and devises, in more or less agreement with other recent investigators in Germany, a "physiopsychological" theory of the facts of hypnotism, as against any supposition of special "mesmeric" or "electrobiological" influences.

Ueber das Richtige. Eine Erörterung der ethischen Grundfragen. Von Dr. JUL. BERGMANN, ord. Prof. der Philosophie an der Universität zu Marburg. Berlin: Mittler, 1883. Pp. vii., 178.

This work falls into five sections, the titles of which give a fair notion of its scope: "The notion of Right in general" (pp. 1-30); "The notion of the morally Right" (pp. 31-67); "The doctrine of Happiness and of Perfection" (pp. 68-113); "The doctrine of Morality as a formal disposition *(Beschaffenheit)* of Will" (pp. 114-152); "Moral Goods and Duties" (pp. 153-176).

Tonpsychologie. Von Dr. CARL STUMPF, Professor der Philosophie an der deutschen Universität zu Prag. Erster Band. Leipzig: Hirzel, 1883. Pp. xiv., 427.

The author, who has already made his mark by his investigation of the psychological origin of the notion of space, here takes up an inquiry to which an early and unbroken devotion to music has helped to direct his scientific attention—the description, namely, of the whole range of psychical functions excited by tones. Though the subject appears to him to have been strangely neglected, considering the advanced state of physical and physiological acoustics (he does not seem to know of Mr. Gurney's elaborate work on *The Power of Sound*), there is, he maintains, no department of psychological inquiry so well provided with means and materials for the attainment of positive results. The present volume does not reach as far as the properly musical problems, but is concerned only with the judgment of successive tones, after a preliminary section (pp. 1-133) on sense-judgments generally. We hope to return to the work at greater length.

Präludien. Aufsätze u. Reden zur Einleitung in die Philosophie. Von WILHELM WINDELBAND, Professor an der Universität Strassburg. Freiburg i. B. u. Tübingen: Mohr, 1884. Pp. vii., 325.

The author, having been occupied for years with the historical studies that resulted in his recent *Geschichte der neuern Philosophie*, and being now to pass to independent philosophical investigation, offers in the ten essays here brought together a sort of programme of his future line of work. The subjects are the following: (1) What is Philosophy? (2) On Socrates; (3) In Memory of Spinoza; (4) Immanuel Kant; (5) On Friedrich Hölderlin; (6) On Thinking and Reflection; (7) Norms and Natural Laws; (8) Critical or Genetic Method? (9) On the Principle of Morality; (10) *Sub specie æternitatis:* only (3) and (6) have been printed before. The point of view is in the main Kantian. "All of us who philosophise in the 19th century are followers of Kant"; "but to understand Kant means to go beyond him".

On Mr. Spencer's Data of Ethics. By MALCOLM GUTHRIE. London: Foulger. Pp. about 120.

"This *forthcoming* volume concludes the author's critical examination of Mr. Spencer's works considered as a system of cosmical explanation. Since Mr. Spencer places the understanding of Ethics upon the understanding of purposed action and affiliates the latter upon the understanding of action in general, this view of Ethics is first examined (c. 1). Afterwards the more limited and properly scientific view of Ethics in relation to biological and sociological Evolution is considered (cc. 2-4). An inquiry as to the nature and authority of the Ethical Imperative occupies c. 5, showing its complex and variously relative nature. Previous systems of Ethics as affected by Evolution, are then considered (c. 6). The problem and explanation of Free-will is examined from an evolutionary point of view in c. 7; a consideration of Evolution and Religion occupies c. 8; and the Summary (c. 9) completes the work. The aim of the critic has been to examine the *Data of Ethics* as dependent upon and as related to the whole scheme of Philosophy as propounded by Mr. Spencer."

Other BOOKS received:—

H. Coke, *Creeds of the Day, or Collated Opinions of Reputable Thinkers*, 2 vols. London: Trübner, pp. 302, 324.

W. Arthur, *On the Difference between Physical and Moral Law* (Fernley Lecture). London: Woolmer, pp. 244.

Le Comte Goblet D'Alviella, *L'évolution religieuse contemporaine chez les Anglais, les Américains et les Hindous.* Paris: Baillière, pp. 431.

O. Schrader, *Sprachvergleichung u. Urgeschichte.* Jena: Costenoble, pp. 490.

VIII.—CORRESPONDENCE.

Mr. Monck, in his review of my *Elements of Logic* (MIND XXXII., 603), has touched on one or two points in which I have ventured to deviate from the beaten track. As the questions raised may perhaps be of interest to logicians generally, may I ask permission to make some observations in explanation and defence of my views?

The first point relates to *Reductio per* (or *ad) Impossibile*. Logicians have sometimes objected to this process as "awkward, roundabout, and operose" (Bowen). The way in which it is usually stated is indeed needlessly awkward. But my objection is more fundamental. I maintain that it is a delusive process, inasmuch as it is not really Reduction at all. My argument, which was published at length in *Hermathena* for 1881, is as follows: —The true use of Reduction is to show that all mediate reasoning is capable of being brought under one type, that to which Aristotle's Dictum applies. Hence in the case of any given syllogism the problem of Reduction is: From the given premisses to deduce the required conclusion by reasoning which (so far as it is not immediate) is wholly in the first figure. This is what is actually done in the case of all the moods except Baroko and Bokardo. Let us confine ourselves to Baroko.

'Every P is M; Some S is not M; therefore Some S is not P.' This is 'reduced' to Barbara thus:—'Every P is M; Every S is P; therefore Every S is M'. So far, well; but how do we elicit from this the required conclusion, 'Some S is not P'? Thus: 'Since the conclusion is false and Some S is not M, one of the premisses must have been false; and, as the major was given true, the minor was false, and therefore Some S is not P'. Now what I say is, that since this latter piece of reasoning is clearly an essential step in the argument, we are bound to put it into the first figure, and hitherto it has not been shown that this is possible. All that the syllogism in Barbara has done for us is to show that, granting that 'Every P is M,' we have a right to say that, 'If every S is P, then every S is M'. We then reason from the denial of the consequent and say, 'But Some S is not M, therefore Some S is not P'. Mr. Monck has taken precisely the same view of the function of this syllogism in Barbara. He says: "When this new conclusion is reached, we have established that, *if* the original conclusion is false (that is, if its contradictory is true), either the Retained Premiss or the Suppressed Premiss, or both of them, are false; whence it follows, again, that if both premisses are true, the original conclusion is true also" (*Introduction to Logic*, p. 179). I think the reasoning is less awkward if we state once for all that the premiss 'Every P is M' is granted; we have then a conditional argument founded on Barbara which is natural enough. It is also easy enough to reduce it to a categorical form, thus: For the conditional: 'If every S is P, every S is M'; we substitute the categorical equivalent: 'Every P is M'. But as the denial of the consequent gave us 'Some S is not M,' for our minor, we have simply got back our original friend Baroko.

Mr. Monck's criticism is as follows: "In every syllogism the truth of the conclusion depends on the hypothesis that the premisses are true, and if this hypothesis is sufficient to render the reasoning hypothetical, every syllogism is a hypothetical syllogism. But if the distinct existence of the categorical syllogism is conceded, where is the material difference between showing that the conclusion is true on the hypothesis that the premisses are true, and showing that one (at least) of the premisses is false, on the hypothesis that the conclusion is false?" I reply, the difference is precisely that between Barbara and Baroko. Assuming that the major (A) is true, if we infer the truth of the conclusion (A) from the truth of the minor (A), our reasoning is in Barbara; but if we infer the falsity of the minor (A), *i.e.*, the truth of its contradictory (O), from the falsity of the conclusion (A), *i.e.*, from the truth of its contradictory (O), our syllogism is in Baroko. I do not see how the conclusion in Baroko is to be inferred from the syllogism in Barbara, except by something equivalent to a hypothetical syllogism. For we deduce it from the fact of the sequence exhibited in Barbara. But to state the fact of the sequence is to state a conditional proposition. As the process is ordinarily stated, we are bidden to reason from the fact of the sequence, but only in a common-sense fashion, without explicitly stating our premisses. The immediate inferences, from the falsehood of A to the truth of O, and so on, are carefully specified, at such length that the actual turning-point of the process is concealed, and we do not see that the original Baroko is there still.

I do not absolutely assert that it is impossible to state this reasoning in the first figure; what I say is that it never has been done, and that I cannot see how it is to be done. I would add that the problem is not solved by proving (supposing this possible) that the reasoning in Baroko is valid. For this would be to prove that this form of reasoning is logically admissible, whereas what is required is to show that it is not a distinct form from that of the first figure.

There is one other point on which I should like to offer some explanation. I have stated that the proposition 'A is equal to B,' is a proposition affirming identity, namely, between the magnitude of A and the magnitude of B, and on this ground I say that it is convertible simply, *i.e.*, we can say 'The magnitude of B is (identical with) the magnitude of A'. Mr. Monck thinks that I have in this curiously mixed up the common system of logic with the Hamiltonian. But what I have said has really no connexion with the latter system. Without reference to that system, I maintain that certain (specified) kinds of propositions express identity of two notions or things, and that Logic ought to take account of these. The simplest of all mediate reasonings is :—

A is identical with B;
B is identical with C;
∴ A is identical with C.

A logical doctrine which tells us that this reasoning is formally invalid, and can only be made correct by some extremely roundabout process, which will bring the expressed relation of identity under that of containing and contained, is so far self-condemned. The following well-known argument of Locke consists of a series of such propositions: "The having the essence of any species being that which makes anything to be of that species, and the conformity to the idea to which the name is annexed being that which gives a right to that name, the having the essence and the having that conformity must needs be the same thing; since to be of any species and to have a right to the name of that species is all one."

The commonest exemplification of propositions in Identity (not identical propositions) is in mathematics, where $A = B$ means "The magnitude of A is identical with the magnitude of B". The necessity of admitting this principle appears farther from the failure of the attempts to treat geometrical reasoning, for instance, on any other. Those who have given us geometrical proofs in syllogistic form (*e.g.*, Mill) have exhibited them as follows :—Let the argument be: 'A is equal to B, B is equal to C; ∴ A is equal to C". Here is the 'correct' syllogism according to Mill :—

> 'Things equal to the same are equal to one another ;
> A and C are equal to the same (B) ;
> ∴ A and C are equal to one another.'

It seems to be admitted without question that the major, as it stands, conforms to the logical type 'Every X is Y'. But it does not, for 'Things, &c.,' is not distributed. We cannot say 'Everything equal to the same is equal to one another'. Secondly, 'equal to the same' and 'equal to one another' are expressions which have no meaning apart from the subject of which they are predicated. Let me explain. Take Y to represent any term capable of being a logical predicate ; then if A and B are Y, and C and D are Y, we can combine these statements and say, 'A and B and C and D are Y'. But if we substitute for Y 'equal to the same,' or 'equal to one another,' this would be absurd. Writers who profess to state the reasoning with anything like logical exactness might have been expected to see this, and to say 'Every pair (or group) of things equal to the same is a pair (or group) of things equal to one another'.

But there are more serious objections still. First the pretended minor : 'A and C are equal to the same (B),' is not one proposition but two, 'A is equal to B, and C is equal to B'. If we say (as just suggested) 'A and B are a pair of things equal to the same,' this is an inference from the two separate propositions, '$A = B$' and '$B = C$' (the latter, by the way, converted !). Next, the conclusion, 'A and C are equal to one another' is also two propositions, not in substance only, but even in expression It asserts '$A = C$' and '$C = A$'. A logician who holds that '$C = A$' cannot be logically inferred from '$A = C$' has no right to admit the proposition, 'A and C are equal to one another' as a simple one. For him it is as much two distinct propositions as 'Equilateral and equiangular triangles are the same'. Finally, the fact is, the real premisses are the two propositions combined in the so-called minor, and the major (so called) is not a premiss at all, but the formal principle of the reasoning. Substituting 'identical with' for 'equal to,' we have a principle which is not limited to this or that matter, but is even more fundamental than Aristotle's Dictum itself. The logician who exhibits the mathematical syllogism in the form given above, ought in consistency to exhibit Barbara somewhat as follows : 'Whatever is predicated of a class under which something else is contained may be predicated of that which is so contained ; But P is predicated of the class M, under which S is contained ; therefore P may be predicated of S.'

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IX.—MISCELLANEOUS.

We regret to record the death, at Oxford, Sept. 24, 1883, at an advanced age, of Mr. T. Collyns Simon, well known as the author of *The Nature and Elements of the External World*, 1848, and as the offerer of a prize of £100 for the first conclusive disproof, within a year from that date, of the Berkeleyan doctrine of Universal Immaterialism, the judges to be men of recognised philosophical attainment named by the refutant himself. Descended from a Huguenot family, Collyns Simon was born at Cork in or about the year 1813. He kept nearly all his terms at Oxford, but owing to ill health did not proceed to a degree. The honorary degree of LL.D. was conferred upon him later by the University of Edinburgh. Latterly he resided much abroad, and had many friends among the leading Professors of philosophy, both in Germany and Italy. He contributed largely at one time to the *Zeitschrift für Philosophie &c.*, edited by Ulrici. But it was in Italy that he resided longest, where he counted amongst his friends the veteran Count Mamiani, SS. Bonatelli, Ferri, Bertini, Fiorentino, and others, and contributed repeatedly to the *Filosofia delle Scuole Italiane.* To the *Contemporary Review* he contributed the striking articles on "The present state of Metaphysics in Great Britain," in June, 1868, and two in January and March, 1870, on "Hegel and his connexion with British Thought". We are glad to learn that an early republication of these and many of his shorter writings is in contemplation.

Rarely is a life so entirely and consistently devoted to philosophy as was that of Collyns Simon. Those too who had the privilege of knowing him personally will not easily forget the uniform gentleness, courteousness, and chivalry of his character, or (in later days) that serene and venerable aspect which seemed an almost ideal presentment of philosophic age.

The Fifth Session of the Aristotelian Society for the Systematic Study of Philosophy was opened on Monday evening, Oct. 15, at 8 John Street, Adelphi, with an address from the President, Mr. Shadworth H. Hodgson, on "The two Senses of 'Reality'". The two following meetings, held on alternate Mondays, were devoted to papers by Dr. A. Senier, Hon. Sec., and Mr. E. Hawksley Rhodes, Vice-President, on Berkeley's *New Theory of Vision;* and the two following to papers by Miss S. Wood and Mr. A. M. Ogilvie, on Berkeley's *Principles of Human Knowledge.* The reading was followed in each case by a discussion, turning in the first instance upon the meaning of the portion of Berkeley introduced by the paper, and then proceeding to more general questions concerning the nature and value of Berkeley's philosophy as a whole. It is proposed to devote the remainder of the Session to a similar study of Hume's *Treatise of Human Nature*, except that some few meetings, including the first on Jan. 7th, will be reserved for the discussion of original communications.

The bi-monthly journal, *La Philosophie positive*, founded in 1867 by MM. Littré and Wyrouboff, and since Littré's death carried on by MM. Robin and Wyrouboff, announces that it will come to an end with the No. just issued. The editors give as the reason for their decision to suspend publication, that at the present time philosophical studies are discredited and men's minds are mainly occupied with questions of a practical order. They add indeed—what hardly consists with the other statement—that, as the positivist philosophy has now spread far beyond the limits of a school, the work of the journal is in a manner done, and there was need, if it was to go on, that it should begin to discharge its philosophical function on a much larger scale. But they end in the previous key, of somewhat regretful complaint, that the world has turned away from generalities and thinks now only of passing affairs. Whether they are right in this view of theirs or not, acknowledgment is due to the energy and intelligence with which the journal has been conducted during its life-time. Not only did Littré illumine its pages with many a contribution of first-rate merit, but also M. Wyrouboff and other writers have ever been ready to measure their positivist doctrine (learned from Comte in his earlier phase) against the other philosophical thought of the day.

Dr. Martineau has issued a second edition of his *Study of Spinoza* (Macmillan). Taking careful account of every criticism which has reached him, he has introduced a few corrections into the Biography; but he has not seen reason to modify any of the interpretations which repeated study and long reflection had led him to put upon the Philosophy. An Index of Subjects and Index of References have been added.

The Oxford Translations of Lotze's *Logik* and *Metaphysik* will be issued by the Clarendon Press, probably, in February or March.

Mr. Henry Sidgwick has been appointed Knightsbridge Professor of Moral Philosophy in the University of Cambridge.

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. XVII. No. 2. W. H. Kimball—Swedenborg and Henry James. Fichte—Facts of Consciousness (trans.). J. G. Woerner—On the nature of Property and its Devolution. Goeschel—On the Immortality of the Soul (trans.). Trentowski—On the Sources and Faculties of Cognition. J. Ward—Objects and their Interaction. D. J. Snider—Homer's *Iliad*. Notes and Discussions.

REVUE PHILOSOPHIQUE.—VIIIme Année, No. 9. E. Chauvet—La médecine grecque et ses rapports à la philosophie. Ch. Bénard—La division des arts dans l'esthétique allemande. S. Tannery—Héraclite et le concept de Logos. Analyses et Comptes-rendus. Notices bibliographiques, &c. No. 10. J. Delboeuf—La matière brute et la matière vivante. G. Tarde—L'archéologie et la statistique (i.). J. Andrade—Les théoriciens moralistes et la moralité. Notes et Discussions (F. Paulhan—Images et mouvements). Analyses, &c. (W. L. Collins, *Butler*; J. Veitch, *Hamilton*; W. Wallace, *Kant*; R. Adamson, *Fichte*). &c. No. 11. D. Nolen—Les logiciens allemands contemporains (i.). G. Lyon—Le monisme en Angleterre: W. K. Clifford. G. Tarde—L'archéologie et la statistique (fin). Analyses, &c. (F. Galton, *Inquiries into Human Faculty*; J. Braid, *Neurypnologie*, trans.). &c. No. 12. H. Marion—James Mill d'après les recherches de M. A. Bain. W. Bevan Lewis—Les localisations cérébrales et la théorie de l'évolution. J. Sully—Le développement mental. Th. Ribot—Les conditions organiques de la personnalité. Notes et Discussions. (Ch. Secrétan et A. Fouillée—La liberté et le déterminisme. P. Tannery—Les forces fonctions des temps). Analyses, &c. (M. Guthrie, *On Mr. Spencer's Unification of Knowledge*, &c.). Rev. des Périod.

LA CRITIQUE PHILOSOPHIQUE.—XIIme Année, Nos. 32-42. F. Pillon—À propos de la notion de nombre (32, 33, 36, 39). Le vrai principe de la morale selon M. Fouillée (35). J. Thomas—Les théories sur le progrès (33). L. Dauriac—De la psychologie indépendante (39); Le sens commun est idéaliste (41). C. Renouvier—Les raisons physiques de poser l'existence d'un monde invisible (40). Ch. Pellarin—La sociologie de M. Herbert Spencer (42).

La Filosofia delle Scuole Italiane.—Vol. XXVII. Disp. 3. G. Fontana—Il diritto secondo la legge di evoluzione. L. Ferri—Osservazioni sopra una bambina. B. Labanca—Critica filosofica e religiosa di A. Tagliaferri. T. Mamiani—Della ipotesi darviniana e sua trasmutazione in altra assai piu probabile. R. Bobba—Il problema di conoscenza secondo l'empirismo fisiologico e la filosofia sperimentale di Aristotele. T. M.—Il R. Liceo E. Q. Visconti di Roma nell' anno scolastico 1881-2. Bibliografia. Vol. XXVIII. Disp. 1. R. Bobba—Il problema &c. (fine). P. Ragnisco —Valore ed origine del principio di contraddizione. T. Mamiani—Necessità modo e misura dell' intervento governativo nelle questioni sociali. T. M.—Della ipotesi darviniana &c. (ii.). &c. Disp. 2. B. Labanca—Virtù e natura. L. Ferri—Di Marsilio Ficino e delle cause della rinascenza del platonismo nel quattrocento. T. Mamiani—Epoche qualitative della cristianità e del papato. T.—Di Scoto Erigena. Bibliografia.

Zeitschrift für Philosophie, &c.—Bd. LXXXIII. Heft 2. R. Eucken—Ueber Bilder u. Gleichnisse bei Kant. Achelis—Ueber die Naturphilosophie der Gegenwart. G. Teichmüller—Ueber den Ursprung des Bewusstseins. H. Ulrici—Der Begriff des Rechts. H. U.—Der Begriff der Nothwendigkeit. Recensionen. Bibliographie.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—GREEN'S ETHICS.

By Professor Henry Sidgwick.

Green's *Prolegomena to Ethics* is a highly interesting and impressive book; and no one who makes the study of morality a matter of serious concern—to whatever school he may belong—can read it without instruction and edification. At the same time I do not find myself able to obtain from it a clear and consistent conception of the author's ethical system, even in outline. It may be said that the book does not profess to give such a system; its title indicates that it consists merely of "Prolegomena" to a future or possible systematic exposition of ethics; and the calamity which prevented its completion has left it imperfect in the very part in which the plan of such a systematic treatise might have been expected to be at least foreshadowed. I admit the force of these considerations; and therefore I do not put forward the following arguments as a formal criticism of what has perhaps not been formally attempted: I merely think it worth while to state the reasons why—though fully appreciating both the philosophical importance of this work and its remarkable literary qualities—I am unable to put together into a coherent whole the different expressions of Green's ethical view which I find in it.

Green's doctrine as to the basis of morality, in the most comprehensive account which he gives of it, is stated to be a "Theory of the Good as Human Perfection". The Perfection which is thus taken to be the ultimate end of rational conduct is otherwise described as the "realisation," "development" or "completion" of human "faculties" or "capabilities". If we ask further to what part of man's apparently composite nature these "faculties" or "capabilities" belong, we are told that they are "capabilities of the spirit which is in man" to which, again, a "divine" or "heaven-born" nature is attributed. The realisation of these capabilities is, in fact, a "self-realisation of the divine principle in man"; that is, of the "one divine mind" which "gradually reproduces itself in the human soul". "God," we are elsewhere told, "is a being with whom the human spirit is identical, in the sense that He *is* all which the human spirit is capable of becoming" (p. 198). Hence the conception of the Divine Spirit presents to the man who is morally aspiring an "ideal of personal holiness" with which he contrasts his own personal unworthiness.

If, however, we are to obtain from these notions anything more than a vague emotional thrill, which, however salutary it may be, cannot carry with it any ethical instruction, we must go on to ask how this relation of man to God is philosophically known, and what definite and reasoned content can be given to this notion of a Divine Spirit. It would appear from the order of Green's treatise, and the proportions of its parts, that an answer to these questions was intended to be given in Book i., on the "Metaphysics of Knowledge". Here we are certainly introduced to a "spiritual principle in nature" corresponding to the spiritual principle implied in all human knowledge or experience. It is argued (pp. 30, 32) that to constitute the "single, all-inclusive, unalterable system of relations," which we find in nature, properly understood, something beyond nature is needed: "something which renders all relations possible," and supplies the "unity of the manifold" which is involved in the existence of these relations. "A plurality of things cannot of themselves unite in one relation, nor can a single thing of itself bring itself into a multitude of relations . . . there must therefore be something other than the manifold things themselves which combines them." Such a "combining agency" in each one's experience is his own intelligence, his intelligent self which unites the objects of his experience while distinguishing itself from them. Hence if we suppose nature to be real "otherwise than merely as for us," we must "recognise as the condition of this reality the action of some unifying principle analogous to that of our understanding". Indeed, Green passes—I do not precisely understand how—from the affirmation of *analogous action* to the affirmation of *identical quality*, and says that nature in its reality implies not only an all-uniting agency which is not natural, but a thinking self-distinguishing consciousness like our own. We further find that this principle of synthesis or unity is "eternal," in the sense that it is not in time, and "complete," in the sense that its combining agency extends to all conceivable objects; and that our own empirical knowledge can only be explained as an imperfect reproduction in us of this eternally complete consciousness.

I am obliged to summarise very briefly the results of an elaborate and complicated argument; but I am not now concerned with the argument itself, merely with the ethical bearing and value of its results; and I venture to think that the above meagre statement gives substantially all the characteristics which Green explicitly attributes to the "spiritual principle" disclosed to us in Book i.—and all, I submit, that can possibly be known about it by the lines of reasoning there developed. And I am confirmed in this view by the passage in Book iii., ch. 2 (p. 189), in which the "conclusions so far arrived at are summarised"; since there also the "one divine mind" which "gradually reproduces itself in the human soul" is not represented with any other "constant characteristics" beyond those of being a unifying, self-distinguishing, self-objectifying consciousness. "If," says the author expressly, "we mean by personality anything else than the quality in a subject of being consciously an object to itself, we are not justified in saying that it necessarily belongs to God." But how, I would ask—with all reverence for the deep religious emotion of our author,—can we possibly get an "ideal of holiness," of an "infinitely and perfectly good will," out of this conception of a combining, self-distinguishing and self-objectifying agency? What perfection can the human spirit aim at, so far as it is merely conceived as the reproduction of such an agency, except the increase of knowledge, extensively or intensively? the presence to the combining intelligence of a more extensive manifold of combined objects, or the presence of them as more effectively combined? I need not say that nothing can be more unlike this conception than Green's moral ideal; in which, indeed, as I shall presently argue, knowledge rather occupies a too subordinate place.

It may be said perhaps that though the Divine Mind cannot be *known* to us as more than a combining intelligence, the source of the systematic unity of nature, we may and ought to *believe* it to be more; and that Green must be supposed to mean this when he describes the "attitude of man towards an infinite spirit" as "not the attitude of knowledge" but only of "awe and aspiration" (p. 329). But the reason he gives for excluding the attitude of knowledge is a reason which, so far as it is valid at all, applies precisely to that conception of the spiritual principle which is given in Book i.: "knowledge," he says, "is of matters of fact or relations, and the infinite spirit is neither fact nor relation"; and since the net result of the "Metaphysics of Knowledge" is at any rate to establish the necessary existence of an eternally complete thinking consciousness which is "neither fact nor relation," but yet "needed to constitute" facts and relations, it seems to me merely an eccentric subtlety of metaphysical terminology to say that we have no "knowledge" of such an eternal mind. We have at any rate, if we have followed assentingly a hundred pages of close argument, a reasoned conviction with regard to it; and my point is that Green seems unaware of the barrenness of this conviction for his ethical purposes, and nowhere offers us a suggestion of any other reasoning by which his philosophical conception of the Divine Mind might be turned into one capable of furnishing us with an adequate ethical ideal. I, at least, can find no grounds in the argument of Book i. for attributing to the spiritual principle any such characteristic as the term "holiness" expresses: I cannot even find adequate reasons for attributing to it anything analogous to Will. It is merely, so far as I understand, an eternal intellect out of time, to which all time and its contents are eternally and (we may say) indifferently present: being equally implied in the conception of *any* succession, it is not shown to carry with it the conception of progress towards an end in the series of motions or changes of which the process of the world in time consists. And even if we grant that such a progress is implied in the development of the eternal consciousness in *us*, it is, as I have already said, still a purely intellectual progress, a growth of that which knows in knowledge alone.

I have so far proceeded on the assumption that the "human perfection" which we are trying to define is the perfection of that spiritual principle which is said to be in a manner identical with God, being an imperfect reproduction of the eternal divine consciousness. But, the classically instructed reader of the *Prolegomena*, remembering the ethical psychology of Aristotle, and noting the large share of influence which the study of Aristotle has obviously had on Green's speculation, may perhaps surmise that our ideal of human perfection—so far as it is practical and (in a narrow sense) ethical, and not scientific or merely intellectual—belongs rather to the human soul as a function of an animal organism, modified by being made a vehicle of the eternal consciousness, and not to that eternal consciousness itself, as making the animal organism the vehicle. And this surmise would certainly find considerable support in the analysis and exposition of the psychological elements of moral action—desire, intellect, volition—which Green has given in Book ii. The author, indeed, is specially concerned to maintain the real unity between the effort of the self-conscious soul in learning to know, and its effort "in the way of giving to or obtaining for objects, which various susceptibilities of the self-conscious soul suggest to it, a reality among matters of fact" (p. 138). But he recognises that its efforts of this latter kind, to a large extent, "originate in animal wants or the susceptibility to animal pleasure, in the sense that without such want or susceptibility they could not be" (p. 129); and though he denies that the desires most important in the moral life of civilised man—such as love, envy, ambition—are directly dependent on animal susceptibilities, I do not understand him to deny that they may be traced ultimately to animal feelings, as modified by the supervention of self-consciousness carrying with it a consciousness of the individuality of other persons. Certainly animals feel love, envy, jealousy; and no reason is suggested why a reproduction of the eternal consciousness should have these emotions, independently of the conditions of the animal organism to which it is subject. Admitting Green's account of the manner in which the self-conscious self reacts upon the desires thus organised, so that they become something different from what they would be in a merely animal soul: admitting that it presents to itself objects of desire, distinct from itself and from each other, and that in seeking the realisation of any particular object it is always seeking its own satisfaction; I should still have inferred that it is only because it has "supervened upon the appetitive life" of an animal organism that the self-conscious self has such desires for the realisation of objects at all. And since the essential characteristic of moral action, as explained in Book ii., consists in the presence of this self-distinguishing and self-seeking consciousness, identifying itself with different particular desires—or rather usually with a complex resultant of several distinguishable desires;

I should have expected that man's pursuit of perfection would be traced to some combination of natural desires modified by self-consciousness.

But the account of the moral ideal, which the author proceeds to give in Book iii., does not correspond to this expectation: the impulse of the spirit to seek "moral good" is rather represented as being in profound contrast and antagonism to the impulses of the animal soul. We are told that though self-satisfaction is continually *sought* by moral agents in the realisation of the objects of particular desires—due to the conditions under which the self-conscious subject exists in the human organism—it cannot be really found there. "The conditions of the animal soul, 'servile to every skiey influence,' no sooner sated than wanting, are such that the self-determining subject cannot be conscious of them as conditions to which it is subject . . . without seeking some satisfaction of itself that shall be independent of these conditions." Accordingly though "good" is defined as "that which satisfies some desire," "moral good" or the "true good" is defined as "an end in which the effort of a moral agent may really find *rest*" (p. 179)—or, as Green elsewhere expresses it, "an abiding satisfaction of an abiding self" (p. 250).

That is, this appears to be Green's view on the whole, though there is a certain ambiguity or hesitation in his language. In some passages he rather confuses the reader by apparently using "good" to denote the object in which self-satisfaction is sought, whether or not it is really found in it. Thus he speaks (p. 99) of a moral agent presenting to himself a certain idea of himself as an "idea of which the realisation *forms*"—not *seems*—"for the time his good". So again, p. 166—"The man who calmly faces a life of suffering in the fulfilment of what he conceives to be his mission could not bear to do otherwise. So to live is his good"; where the context shows that such a man is not therefore conceived to find satisfaction in so living. But supposing we understand "good" in such passages to mean 'apparent' or 'anticipated' good, another difficulty remains. Green holds, of course, that particular desires are continually being satisfied; and since he speaks of the moral agent as "identifying itself" with such desires (or their objects) and even speaks of a "particular *self*-satisfaction" to be gained in attaining one of these objects (p. 108), I do not see how he can consistently deny that the good even of a moral agent is *temporarily* gained in such "particular self-satisfactions". Still, the passages in which such denial is explicitly or implicitly made are too numerous and unmistakeable to leave any doubt that they express a doctrine deliberately held. Such a doctrine indeed is indispensable as a basis to the intermittent controversy with Hedonism which Green carries on throughout the treatise; since, so far as I can see, his only substantial objection to the Hedonistic end relates to its transient quality: it is not a "permanent" or "abiding" good. He still indeed clings to the paradox maintained by him on previous occasions of controversy[1] that "a greatest sum of pleasures" is "intrinsically unmeaning"; but a Hedonist, I think, need not seriously concern himself with the refutation of this paradox, since in another passage Green explains that he does not intend to "deny that there may be in fact such a thing as desire for a sum or contemplated series of pleasures, or that a man may be so affected by it as to judge that some particular desire should not be gratified"; and I need hardly say that he does not intend to deny that certain courses of action "tend to make life more pleasant on the whole," or that "an overbalance of pain on the whole would result to those capable of being affected by it" from certain other courses of action—in fact he expressly affirms both these propositions in the very words that I have used. In these propositions it is implied that pleasure and pain, as distinguished from their conditions, can be subjected—in some degree at least—to quantitative measurement; and therefore, when in another passage Green lays down that "pleasure (in distinction from the facts conditioning it) is not an object of the understanding," the Hedonist need not be troubled at the strange statement; for he will perceive that it is to be understood in some subtle metaphysical sense with which he is not concerned.[2] In short, the one anti-hedonistic argument on which our author now appears seriously to rely is that pleasures are of "perishing nature" and "do not admit of being accumulated in enjoyment":[3] that, therefore they are not in any sense permanent or "abiding," so that no amount of them can give real satisfaction to a moral agent, and constitute his true good. The pleasure-seeker, like the "animal soul," is "no sooner sated than wanting," the satisfaction of any particular desire is no sooner attained than a desire, similar or different, emerges again; and therefore true self-satisfaction is not attained; the effort of the moral agent does not "find rest".

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[1] *Cf.* MIND, VI., 267-9; and the Introduction to Hume's *Treatise on Human Nature*, § 7.

[2] I must confess that I cannot even conjecture in what sense Green lays down this proposition; since it appears to me that in this very discussion he conducts long arguments which are only intelligible if the distinction between pleasure and the facts conditioning it is thoroughly grasped and steadily contemplated by the understanding. And I may add that this distinction is carried to a degree of subtlety far beyond that which the Hedonist requires, or would be disposed to adopt; for Green insists on his distinguishing "pleasure" from the "satisfaction" involved in the conscious realisation of a desired object.

[3] In some passages I incline to think that Green's argument proceeds on the tacit—and surely quite unwarrantable—assumption that an "end," in

Now, I have given this argument—which Green urges with a very impressive earnestness of conviction—my best consideration; and I am obliged to conclude that there must be very fundamental differences in the constitution of moral agents, if I may be allowed to count myself one. For if I understand what Green means by "rest," I can only say that I desire it as little as I expect it, in this life or in any other. The happiness that I have enjoyed has been conditioned by the perpetual presence—or rather the continually fresh emergence—of desire; and whether this condition is to be referred to the "animal soul" or not, I have no aversion to it and do not aspire to be independent of it. I recognise this dislike of desire and this contempt for transient satisfactions which Green expresses as characteristic of the conscious experience of certain meditative minds; but I can confidently deny that these feelings are necessary or universal, and I have no adequate ground for regarding them as even common among human beings generally. I admit that men frequently, under the influence of strong desire, are liable to the illusion that the agreeable "repose of a mind satisfied" will be at least a comparatively permanent consequence of attaining the desired object, and are temporarily disappointed when they find that this is not the case; but neither the expectation nor the disappointment is inevitable or universal: indeed, they seem to me rather experiences of the immature mind, which riper reflection on the relation of desire to life tends to suppress. The man who has philosophised himself into so serious a quarrel with the conditions of human existence that he cannot be satisfied with the prospect of never-ending bliss, because its parts have to be

the ethical use of the term, ought to mean something to which we gradually get nearer and nearer—some sort of goal or consummation. But all that I, and (I conceive) most ethical writers, mean by the term is an object of rational aim—whether attained in successive parts or not—which is not sought as a means to the attainment of any ulterior object, but for itself. And so long as any one's prospective balance of pleasure over pain admits of being made greater or less by immediate action in one way or another—which Green does not deny—there seems no reason why 'Maximum Happiness' should not provide a serviceable criterion of good.

enjoyed successively, and under the condition of being successively desired—such a man, I venture to think, is not a typical φρόνιμος.

I have digressed somewhat from the main line of my discussion, because I could hardly avoid noticing the anti-hedonistic controversy which occupies so large a space in the *Prolegomena*: but as my primary object is not to criticise Green's view from the outside, but rather to exhibit the difficulties of framing a clear and consistent notion of it, I will assume for the present that the true good of man must be a "permanent" or "abiding" good, and therefore cannot be pleasure. What then is it? and what ground have we for supposing it attainable by man? It does not appear that the path of moral progress, even as pursued with the most stoical contempt for attendant pleasures and pains, is one in which the effort of the moral agent finds "rest," at least in this earthly sphere. Green, at any rate, does not maintain this: he says of the "man who calmly faces a life of suffering in the fulfilment of what he conceives to be his mission," that "*if* he could attain the consciousness of having accomplished his work, . . . he would find satisfaction in the consciousness," but adds that "*probably just in proportion to the elevation of his character he is unable to do so*" (p. 166): it would seem therefore that he no less than the voluptuary is always pursuing and never attaining.

Perhaps it may be said that if the "abiding good" is not *found* by the man who is seeking perfection, it is at any rate approached by him; the moral aspirant who is daily growing less imperfect may not experience the satisfaction of attainment, but at any rate he is getting towards it.[1] But (1) what can this avail him if he never actually attains? and (2) even granting that the consciousness of approximation is the best substitute available to him for the consciousness of attainment in this earthly life, I cannot conceive in what sense this can be regarded as an "abiding satisfaction," unless there is a reasonable prospect of the continuance of his personal existence after death,—and I do not see that Green's reasonings give him any justification for such an expectation. We are told, indeed, that "a capacity consisting in a self-conscious personality cannot be supposed to pass away. It partakes of the nature of the eternal." But granting this, still everything depends on the extent and manner in which this participation is conceived: however true it may be that the human spirit is in a sense identical with the Divine Being, it is undeniably different from it as a self-conscious individual; and the question whether its participation in the nature of the eternal involves immortality of its distinct individual self is one which Green does not seem to me to have definitely faced. In the passage (pp. 193-5) in which he comes nearest to discussing it, the question that primarily seems to interest him is not whether the individual John or Thomas has reason to expect continued existence as an individual after death, but whether we have reason to expect that the life of the spirit will always be realised in *some* individual persons. What he is concerned to maintain is, that "the human spirit cannot develop itself according to its idea except in self-conscious subjects . . . the spiritual progress of mankind is an unmeaning phrase, unless it means a progress of which feeling, thinking, and willing subjects are the agents and sustainers". Considering the "promise which the spirit gives of itself, both in its actual occasional achievement and in the aspirations of which we are individually conscious"; we may, he thinks, "justify the suppositions that the personal life, which historically or on earth is held under conditions which thwart its development, is continued in a society, with which we have no means of communication through the senses, but which shares in and carries further every measure of perfection attained by men under the conditions of life that we know. Or we may content ourselves with saying that the personal self-conscious being, which comes from God, is for ever continued in God. Or we may pronounce the problem suggested by the constant spectacle of unfulfilled human promise to be simply insoluble."

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[1] P. 256. "But of particular forms of life we may say that they are better, because in them there is . . . a nearer approach to the end in which alone man can find satisfaction for himself."

Now doubtless the consideration of these alternatives, the weighing of the *pros* and *cons* for each of them, is an interesting and elevating speculation; but I fail to perceive that any one of them meets the difficulty with which I am now dealing. If

> "The high that proved too high, the heroic for earth too hard,
> The passion that left the ground to lose itself in the sky"

present us only with an insoluble problem, I do not see how the philosopher is to fulfil the task he has undertaken of showing the effort after an "abiding self-satisfaction" to be rational. Nor, again, do I see how this is achieved by adopting the second alternative, and supposing that the personal self-conscious being, now designated as John or Thomas, is to be "for ever continued in God". For God, or the eternal consciousness—according to the definition given in Book i.—is necessarily conceived as unalterable: it is eternally in reality all that the human spirit is in possibility, and there are no conceivable perfections that could be added to it; and the process of man's moral effort is surely futile if it is to end in nothing but the existence of that which exists already.[1] It may be said that objections of this kind may be brought against every philosophical theology, unless it diverges widely from religious common-sense: a plain man cannot but conceive the world-process, divinely ordered, as designed to bring about some good not yet realised which must be good from a divine or universal point of view, and yet he cannot conceive the Divine existence as at any time defective or wanting in any respect. I admit the force of the rejoinder; only, unlike Green, I should draw from it the inference that we ought not to use these theological notions, while yet unpurged of such palpable inconsistencies, as the basis of a philosophy of practice.

If, however, we leave on one side these theological difficulties, can we find the "abiding self-satisfaction" which a moral agent is supposed to seek, in the first of the alternatives above suggested—in the conception, that is, of a society of persons who somewhere, somehow, in the indefinite future, are to carry further that movement towards perfection which is so seriously impeded among the human beings whom we know? We might perhaps accept the solution—it being granted that the human spirit can be abidingly satisfied with movement instead of rest, progress instead of perfection—if a "better state of humanity" could be taken as a convertible term for the "better state of myself" at which, as a moral agent, I necessarily aim. In several passages Green seems to pass backwards and forwards between these two notions as if they might be used indifferently in his reasonings; but I cannot see how his moral psychology justifies this procedure. He has laid it down that "in all desire, or at any rate in all that amounts to will, it is self-satisfaction which the self-conscious agent necessarily seeks . . . a certain possible state of himself which in the gratification of the desire he seeks to reach" (pp. 177, 182): and since he has also explained how the most characteristic human desires depend on the conscious distinction between the desirer's own individuality and that of other persons, I presume that we must maintain this distinction in interpreting the account above given of "all desire"; and therefore that the "better state of myself" which I necessarily seek cannot be the better state of any other person as such. But if so, we must know exactly how the one comes to be identified or indissolubly connected with the other under the comprehensive notion of the "bettering of man" or "humanity"; by what logical process we pass from the form of unqualified egoism under which the true end of the moral agent is represented to us on one page, to the unmediated universalism which we find suddenly substituted for it on another. I admit, of course, that the Divine Spirit, so far as it can be rightly conceived to aim at the realisation or reproduction of itself in men, must be conceived as aiming at its realisation in "persons," not in "this person," in humanity, not in me; but this only brings out more forcibly the difference that has to be bridged over between the aim of my one indivisible conscious self at its own satisfaction, and this aim of the Divine Spirit at a satisfaction or realisation which may just as well be attained in anyone else as in me. The mere fact that I am aware of myself as a self-distinguishing consciousness and attribute a similar consciousness to other men, does not necessarily make me regard their good as my own; some rational transition is still needed between the recognition of them as ends to themselves, and the recognition of them as ends to myself.

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[1] It may perhaps be said that I ought not to apply such a conception as "already existing" to a Being whose existence is expressly stated to be out of time. And, though I cannot profess to be able to reason about such a Being without tacitly conceiving it in some relation to time, I should not have ventured to use the phrase in the text if Green had not set me the example; *e.g.*, in speaking (p. 181) of a "best state of man already present to some divine consciousness".

Can this transition be obtained by dwelling on the essential sociality of men, the universal or normal implication, through sympathy, of each one's interest or good with the interests of some others—according to the plain man's conception of 'interest' no less than the philosopher's? In some parts of his discussion (*e.g.*, in Book iii., ch. 3) Green seems to rely to some extent on this line of reasoning, with which the looser optimism of eighteenth-century moralists appears to have been often entirely satisfied; but I think that an exact consideration of it will show its inadequacy to establish the required conclusion. For granting all that is claimed, it only proves that I cannot realise good for myself without promoting the good of others in some degree; it does not show that my own good is in any sense identical with the good of others who are to live after me, so that it will "abide" in another form when my individual existence has terminated. And even if we give up the characteristic of "permanence" and merely consider whether my good during life can be identified with the good of humanity at large, I still fail to see how this identification can be justified by anything that we know of the essential sociality of ordinary human beings. The "better state of himself" as conceived even by a voluptuary, who aims at dining well, is a social state: his dinner must be a convivial dinner if it is to be good; but it does not follow that he contemplates the waiters who hand round the dishes as ends-in-themselves or has any interest in future good dinners of which he will not partake. This is a coarse illustration; but the proposition that it illustrates seems to me equally, if less palpably, true of all the ordinary exercises and functions of cultivated social existence: the mere fact that I am a social being, that my life is meager and starved if I do not enlarge it by sympathy, and live the life of the community of which I am a member, does not necessarily constitute the good of humanity my good: it brings me a certain way towards this, but it has not necessarily any force or tendency to carry me the rest of the way. Granting that "to any one actuated by it the idea of perfection for himself will involve the idea of a perfection for all other beings, *so far as* he finds the thought of their being perfect necessary to his own satisfaction," it remains true that to most persons the dissatisfaction caused by the idea of the imperfection of other beings, not connected with them by some special bond of sympathy, is at any rate an evil very faintly perceptible; and the question why in this case they should sacrifice any material part of their own good or perfection to avoid it remains unanswered.

I shall be told, perhaps, that the true good of man is so constituted that no competition can possibly arise between the good of one individual and the good of any other. And, doubtless, Green often affirms with sufficient distinctness that "the idea of a true good does not admit of the distinction between good for self and good for others". I think, however, that he does not steadily keep before his mind the gulf that he has placed between himself and common-sense by the adoption of this important proposition; and that, in consequence, he wastes his energies in trying to establish the untenable paradox that civil society is "founded on the idea" of a common good of this kind. He admits, indeed, that "we are very far, in our ordinary estimates of good, whether for ourselves or for others, from keeping such a standard before us . . . the conviction of the community of good for all men has little positive influence over our practical judgments"; good being, in fact, "sought in objects which admit of being competed for". But he does not seem to see that the acceptance of this proposed standard would radically alter the common notions of virtue, even the notions to which he himself adheres most unquestioningly in his delineation of the moral ideal. Consider, for example, his description of the ideally just man, who is "so over-curious, as it seems to the ordinary man of the world, in inquiring, as to any action that may suggest itself to him, whether the benefit which he might gain by it for himself or for some one in whom he is interested would be gained at the expense of anyone else"; and so determined not to "promote his own wellbeing or that of one whom he loves or likes, from whom he has received service or expects it, at the cost of impeding in any way the wellbeing of one who is nothing to him as a man, or whom he involuntarily dislikes" (p. 244). Surely all this scrupulous investigation, all this resolute impartiality, implies that, in the opinion of Green's ideally just man, it is at least possible that he and his friends may be benefited at the expense of others, that the promotion of one's own wellbeing may really involve the cost of impeding the wellbeing of others: in short, that good really consists—at least to some extent—in "objects that admit of being competed for". How, after writing this description of an ideally just man, Green could go on to say that "the distinction of good for self and good for others has never entered into that idea of a true good upon which moral judgments are founded," I cannot imagine. That the distinction ought to be banished from our moral judgments is an intelligible proposition—though I think a moralist who makes it is rather bound to reconstruct our notions of justice and injustice, and show us the form they will take when the distinction is eliminated—but the statement that it has "never entered in" I contemplate with simple amazement.

So again, the "habitual self-denial," the "self-sacrificing will" which form an essential element of Green's moral ideal, seem to me notions with regard to which Kant's question *Quid juris?* is very obviously raised by Green's theory of the true good; and the question one that never finds an answer. If all self-conscious agents are always aiming each at his own good or self-satisfaction, and the most virtuous man only differs from the most vicious in that he seeks it with a truer insight into its nature, how can he—in the strictness of philosophical discourse—be said to "deny" or "sacrifice" himself in so seeking it? What he denies is not "himself"—according to Green's psychology as expounded in Book ii.—but those "impulses," "influences," or "tendencies" due to his animal soul with which he does *not* identify himself,[1] "by which he is consciously affected but which are not he"; and which Green, indeed, with a certain eccentricity of terminology, is reluctant even to call "his desires". I trust the reader will not think that I am disputing about words; the question, I take it, is not of language but of the correctness of a certain psychological analysis; I seem to discern, in Green's account of moral action, pagan or neo-pagan forms of ethical thought combined with Christian or post-Christian forms without any proper philosophical reconciliation.

It may be said, however, that these objections are purely formal, or at least that they do not affect the substance of our author's own doctrine: let us leave them, therefore, and try if, when we examine in detail the content of Green's conception of a "true good" for the individual, we find it really so constituted that it cannot possibly come into competition with the true good of any other individual. It is difficult to see how this can be maintained with reference to the wide ideal of human perfection which is put forward in many passages of the treatise. The "realisation of human capabilities" at which we ought to aim is repeatedly stated to include "art and science" as well as "specifically moral virtues": we must suppose "all that is now inchoate in the way of art and knowledge" to have reached completion in it (p. 309): the development of arts and sciences is "a necessary constituent" of any life which "the educated citizen of Christendom" presents to himself as one in which he can find satisfaction (p. 415). But if I am right in thinking the development of artistic faculty and taste a part of my true good, I surely cannot be wrong in regarding the latter as including "objects that admit of being competed for," so long as the material conditions of our spiritual existence remain at all like what they are at present: indeed I should have thought that a writer like Green, who steadily refuses to take a hedonistic view of ordinary human aims and efforts, must regard the "realisation of scientific and artistic capacities," taken in a wide sense, as constituting the main motive of the keen struggle for material wealth which educated and refined persons generally feel themselves bound to keep up, for their children even more than for themselves. The thoughtful trader knows that wealth will enable him to provide himself and those he loves with books, pictures, prolonged education, varied travel, opportunities of intellectual society: and, knowing this, he allows himself to adopt methods of dealing which sometimes, perhaps, are hardly compatible with Green's ideal of justice. Similarly the hardest choice which Christian self-denial imposes is the preference of the work apparently most socially useful to the work apparently most conducive to the agent's own scientific and æsthetic development.[1]

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[1] *Cf.* especially Bk. ii. ch. 2, p. 151.

It may be replied that Art and Science are good, but Virtue better; that the self-devotion which leads a man to postpone to duty the fullest possible realisation of his scientific or artistic faculties is an exercise in which a fuller development of his nature as a whole is attained. I cannot conceive any empirical criterion of "fulness of development" by which this could be made to appear even probable as a universal proposition: but if we grant it to be true, in all cases in which the occasion for such a sacrifice may be presented, it can only be because the superiority in importance of the "specifically moral virtues," as compared with

> All other skills and gifts to culture dear,

is held to be so great that the alternatives may be regarded as practically incommensurable. But if this be so, it seems to me that the promotion of the specifically moral virtues—considering the amount that remains to be done in this direction—ought in consistency to occupy so large a share of the practical philanthropist's attention that Green's inclusion of Art and Science will turn out to have hardly any real significance. In short Green seems to me to have unconsciously tried to get the advantages of two distinct and incompatible conceptions of human good: the one liberally comprehensive, but palpably admitting competition, the other non-competitive but stoically or puritanically narrow.

If, again, we concentrate our attention on the narrower conception of "specifically moral virtue," we find a similar difficulty in combining, as Green wishes us to do, formal and material criteria of virtuous action: nor do I think that matters are improved by the trenchant and dogmatic solution of the difficulty which Green here offers. Sometimes the formal criterion is put forward in language which would satisfy the most orthodox Kantian: "the only good," we are told, "which is really common to all who pursue it is that which consists in the universal will to be good" (p.

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[1] I think Green unconsciously evades the difficulty which this choice presents, on his theory, when he speaks (pp. 292-3) of "the conscientious man sacrificing *personal pleasure* in satisfaction of the claims of human brotherhood . . . the good citizen has no leisure to think of developing his own faculties of *enjoyment*". Of course his good man, being anti-hedonistic, has no theoretical difficulty in sacrificing his own pleasure or enjoyment—or indeed that of anyone else: but we may still ask whether and why and how far he is called upon to sacrifice the realisation of his scientific and artistic capabilities.

262): the good will is "the one unconditional good . . . the end by reference to which we estimate the effects of an action" (p. 316). On the other hand, it is explained that the "good will" must not be understood to be "a will possessed by some abstract idea of goodness or moral law," which would "amount to a paralysis of the will for all effectual application to great objects of human interest". We conclude therefore that a will is not good, as with Kant, merely through its motive being pure regard for duty, but through its leading to good effects; and accordingly Green expressly says that a man "cannot have been good unless he has done what is good in result" (p. 332). It immediately occurs to us that, if this be true, in order to be good a man must have more than a mere will to be good; his zeal must be according to knowledge; he must have the power of foreseeing what actions will lead to good results. "A dominant interest in the perfection of mankind" will avail him little, if he erroneously supposes that it may be best promoted by a free use of dynamite. And besides mere knowledge there are various other qualities, caution, presence of mind, instinctive sympathy and tact, &c., the want of which, as is commonly thought, may seriously impair the good effects of the most well-intentioned acts. How then can we say that a good will is the "one unconditional good"? Green meets this difficulty by dogmatically enunciating that "there is no real reason to doubt that the good or evil in the motive of an action is exactly measured by the good or evil in its consequences as rightly estimated" (p. 320). "With the whole spiritual history of the action before us on the one side, with the whole sum and series of its effects before us on the other, we should presumably see that just so far as a good will . . . has had more or less to do with bringing the action about, there is more or less good . . . in its effects."

Nothing that can be called evidence is offered on behalf of this startling presumption, and I cannot conjecture on what grounds Green considered himself justified in thus dogmatically affirming it: especially when I find him saying later on that it is "*obvious* that the exact measure in which my conduct has fallen short of . . . perfection," in any particular action, "cannot be speculatively ascertained, till we can see all moral effects in their causes". If it is obviously impossible to ascertain how far the effects of any action are good, how can I possibly tell that they are certain to be exactly as good as the agent's motives were? The perplexity is made greater when Green goes on to admit expressly (p. 334) that evil consequences of actions may have been due to a "want of the requisite knowledge and ability to foresee" (pp. 333, 4); without expressly maintaining or even implying that such ignorance and want of foresight are always traceable to want of good will. The perplexity reaches its height when we consider wherein the goodness of these good effects consists and how it is to be known. It must ultimately lie, as Green repeatedly tells us, in the tendency of the immediate consequences of actions to promote good character, that "perfection of mankind of which the essence is a good will on the part of all persons". It is true that this promotion can be only indirect, since "every one must make his character for himself. All that one man can do to make another better is to remove obstacles and supply conditions favourable to the formation of a good character". Still it remains true that the promotion of a good character in others and ourselves must, according to Green, be the sole ultimate end and standard of the goodness of the effects of our actions. On the other hand, Green explains in another passage (pp. 318, 19) that "we are on very uncertain ground" when we try, in judging the actions of contemporaries, to "ascertain the state of character on the part of the agents which the actions represent": and hence concludes that it is wiser "to confine ourselves to measuring the value of actions by their effects without reference to the character of the agents". But, as we have seen, these effects can only be effects on the character of other persons; and since, I presume, our judgments as to effects on character must ultimately be inferred from observations of conduct, there would seem to be precisely the same kind of difficulty in measuring the value of actions by their effects as there is in trying to ascertain the character of the agent; only that in the former case the unknown quantity comes in at a later stage of the calculation.

I cannot but think that these and other fundamental difficulties of method would have pressed themselves more strongly on Green's attention, and would therefore have obtained from him at least a consistent solution, if he had ever felt strongly the practical importance of improving men's knowledge or reasoned conviction as to what they ought to do. But—in face of the vehement jar and conflict of principles and methods continually exhibited by contemporary schools and sects of social reformers, whose sincerity and earnestness cannot be doubted—he remains firmly persuaded that practically the tendency of actions to produce a perfection of human society will be "within the ken of any dispassionate and considerate man"; and hence, though he recognises that it is the function of philosophy to supply men with a "*rationale* of the various duties" prescribed to them, I cannot perceive that the enthusiasm for human wellbeing which the whole treatise breathes has actually impelled him to furnish such a *rationale*, or even to provide his readers with an outline of a coherent method by which a system of duties could be philosophically worked out. There is much instructive description and discussion, in the concluding Book of the treatise, of the general attitude which a moral man should adopt in dealing with practical problems, much subtle analysis and distinction of different elements presented for his consideration; but if the reader expects to be guided to a cogently reasoned solution of any such problems—proceeding from unambiguous ethical premisses to definite practical conclusions—the expectation will hardly be fulfilled.

This, at least, is the conclusion at which I have arrived, after a careful perusal of the treatise: but I expect that it will be widely disputed. Considering the growing prevalence of the manner of thought of which Green was a leading representative, the great influence exercised by himself personally, the amount of close and powerful reasoning which his book contains, and the singularly elevated and inspiring ethical mood which pervades it from first to last—it is hardly possible that such a work should not meet with many readers to whom it will give, as a whole, more intellectual satisfaction than I have been able to find in it. Indeed, had I thought otherwise, it would have seemed to me more suitable—as it would certainly have been more consonant with my own feelings—to treat this posthumous book in a less polemical manner; to dwell more upon its literary merits, and upon those aspects or elements of its doctrine with which I am in cordial sympathy. But, regarding the treatise as one about which our ethical discussion is likely for sometime to turn, I have thought it best to urge the fundamental difficulties that I find in its teachings as frankly and fully as I should have done if the author had been living to reply. There are many, I doubt not, ready—if they should think it needful—to come (as Plato says) "to the aid of the orphaned doctrine, the father of which had he lived would have struck many a good stroke in its behalf": or let me rather say—since he never wrote for victory—that he would have set himself to remove such difficulties as he thought worthy of consideration in the candid, earnest, careful, exhaustive style of controversy which was peculiarly his own. That this source of further instruction is now for ever closed to us, no one can regret more sincerely than the writer of this article.

II.—WHAT IS AN EMOTION?

By Professor WILLIAM JAMES.

THE physiologists who, during the past few years, have been so industriously exploring the functions of the brain, have limited their attempts at explanation to its cognitive and volitional performances. Dividing the brain into sensorial and motor centres, they have found their division to be exactly paralleled by the analysis made by empirical psychology, of the perceptive and volitional parts of the mind into their simplest elements. But the *æsthetic* sphere of the mind, its longings, its pleasures and pains, and its emotions, have been so ignored in all these researches that one is tempted to suppose that if either Dr. Ferrier or Dr. Munk were asked for a theory in brain-terms of the latter mental facts, they might both reply, either that they had as yet bestowed no thought upon the subject, or that they had found it so difficult to make distinct hypotheses, that the matter lay for them among the problems of the future, only to be taken up after the simpler ones of the present should have been definitively solved.

And yet it is even now certain that of two things concerning the emotions, one must be true. Either separate and special centres, affected to them alone, are their brain-seat, or else they correspond to processes occurring in the motor and sensory centres, already assigned, or in others like them, not yet mapped out. If the former be the case we must deny the current view, and hold the cortex to be something more than the surface of "projection" for every sensitive spot and every muscle in the body. If the latter be the case, we must ask whether the emotional "process" in the sensory or motor centre be an altogether peculiar one, or whether it resembles the ordinary perceptive processes of which those centres are already recognised to be the seat. The purpose of the following pages is to show that the last alternative comes nearest to the truth, and that the emotional brain-processes not only resemble the ordinary sensorial brain-processes, but in very truth *are* nothing but such processes variously combined. The main result of this will be to simplify our notions of the possible complications of brain-physiology, and to make us see that we have already a brain-scheme in our hands whose applications are much wider than its authors dreamed. But although this seems to be the chief result of the arguments I am to urge, I should say that they were not originally framed for the sake of any such result. They grew out of fragmentary introspective observations, and it was only when these had already combined into a theory that the thought of the simplification the theory might bring to cerebral physiology occurred to me, and made it seem more important than before.

I should say first of all that the only emotions I propose expressly to consider here are those that have a distinct bodily expression. That there are feelings of pleasure and displeasure, of interest and excitement, bound up with mental operations, but having no obvious bodily expression for their consequence, would, I suppose, be held true by most readers. Certain arrangements of sounds, of lines, of colours, are agreeable, and others the reverse, without the degree of the feeling being sufficient to quicken the pulse or breathing, or to prompt to movements of either the body or the face. Certain sequences of ideas charm us as much as others tire us. It is a real intellectual delight to get a problem solved, and a real intellectual torment to have to leave it unfinished. The first set of examples, the sounds, lines, and colours, are either bodily sensations, or the images of such. The second set seem to depend on processes in the ideational centres exclusively. Taken together, they appear to prove that there are pleasures and pains inherent in certain forms of nerve-action as such, wherever that action occur. The case of these feelings we will at present leave entirely aside, and confine our attention to the more complicated cases in which a wave of bodily disturbance of some kind accompanies the perception of the interesting sights or sounds, or the passage of the exciting train of ideas. Surprise, curiosity, rapture, fear, anger, lust, greed, and the like, become then the names of the mental states with which the person is possessed. The bodily disturbances are said to be the "manifestation" of these several emotions, their "expression" or "natural language"; and these emotions themselves, being so strongly characterised both from within and without, may be called the *standard* emotions.

Our natural way of thinking about these standard emotions is that the mental perception of some fact excites the mental affection called the emotion, and that this latter state of mind gives rise to the bodily expression. My thesis on the contrary is that *the bodily changes follow directly the* PERCEPTION *of the exciting fact, and that our feeling of the* *same changes as they occur* IS *the emotion.* Common sense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run; we are insulted by a rival, are angry and strike. The hypothesis here to be defended says that this order of sequence is incorrect, that the one mental state is not immediately induced by the other, that the bodily manifestations must first be interposed between, and that the more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble, because we are sorry, angry, or fearful, as the case may be. Without the bodily states following on the perception, the latter would be purely cognitive in form, pale, colourless, destitute of emotional warmth. We might then see the bear, and judge it best to run, receive the insult and deem it right to strike, but we could not actually *feel* afraid or angry.

Stated in this crude way, the hypothesis is pretty sure to meet with immediate disbelief. And yet neither many nor far-fetched considerations are required to mitigate its paradoxical character, and possibly to produce conviction of its truth.

To begin with, readers of this Journal do not need to be reminded that the nervous system of every living thing is but a bundle of predispositions to react in particular ways upon the contact of particular features of the environment. As surely as the hermit-crab's abdomen presupposes the existence of empty whelk-shells somewhere to be found, so surely do the hound's olfactories imply the existence, on the one hand, of deer's or foxes' feet, and on the other, the tendency to follow up their tracks. The neural machinery is but a hyphen between determinate arrangements of matter outside the body and determinate impulses to inhibition or discharge within its organs. When the hen sees a white oval object on the ground, she cannot leave it; she must keep upon it and return to it, until at last its transformation into a little mass of moving chirping down elicits from her machinery an entirely new set of performances. The love of man for woman, or of the human mother for her babe, our wrath at snakes and our fear of precipices, may all be described similarly, as instances of the way in which peculiarly conformed pieces of the world's furniture will fatally call forth most particular mental and bodily reactions, in advance of, and often in direct opposition to, the verdict of our deliberate reason concerning them. The labours of Darwin and his successors are only just beginning to reveal the universal parasitism of each special creature upon other special things, and the way in which each creature brings the signature of its special relations stamped on its nervous system with it upon the scene.

Every living creature is in fact a sort of lock, whose wards and springs presuppose special forms of key,—which keys however are not born attached to the locks, but are sure to be found in the world near by as life goes on. And the locks are indifferent to any but their own keys. The egg fails to fascinate the hound, the bird does not fear the precipice, the snake waxes not wroth at his kind, the deer cares nothing for the woman or the human babe. Those who wish for a full development of this point of view, should read Schneider's *Der thierische Wille*,—no other book shows how accurately anticipatory are the actions of animals, of the specific features of the environment in which they are to live.

Now among these nervous anticipations are of course to be reckoned the emotions, so far as these may be called forth directly by the perception of certain facts. In advance of all experience of elephants no child can but be frightened if he suddenly find one trumpeting and charging upon him. No woman can see a handsome little naked baby without delight, no man in the wilderness see a human form in the distance without excitement and curiosity. I said I should consider these emotions only so far as they have bodily movements of some sort for their accompaniments. But my first point is to show that their bodily accompaniments are much more far-reaching and complicated than we ordinarily suppose.

In the earlier books on Expression, written mostly from the artistic point of view, the signs of emotion visible from without were the only ones taken account of. Sir Charles Bell's celebrated *Anatomy of Expression* noticed the respiratory changes; and Bain's and Darwin's treatises went more thoroughly still into the study of the visceral factors involved,—changes in the functioning of glands and muscles, and in that of the circulatory apparatus. But not even a Darwin has exhaustively enumerated *all* the bodily affections characteristic of any one of the standard emotions. More and more, as physiology advances, we begin to discern how almost infinitely numerous and subtle they must be. The researches of Mosso with the plethysmograph have shown that not only the heart, but the entire circulatory system, forms a sort of sounding-board, which every change of our consciousness, however slight, may make reverberate. Hardly a sensation comes to us without sending waves of alternate constriction and dilatation down the arteries of our arms. The blood-vessels of the abdomen act reciprocally with those of the more outward parts. The bladder and bowels, the glands of the mouth, throat, and skin, and the liver, are known to be affected gravely in certain severe emotions, and are unquestionably affected transiently when the emotions are of a lighter sort. That the heart-beats and the rhythm of breathing play a leading part in all emotions whatsoever, is a matter too notorious for proof. And what is really equally prominent, but less likely to be admitted until special attention is drawn to the fact, is the continuous co-operation of the voluntary muscles in our emotional states. Even when no change of outward attitude is produced, their inward tension alters to suit each varying mood, and is felt as a difference of tone or of strain. In depression the flexors tend to prevail; in elation or belligerent excitement the extensors take the lead. And the various permutations and combinations of which these organic activities are susceptible, make it abstractly possible that no shade of emotion, however slight, should be without a bodily reverberation as unique, when taken in its totality, as is the mental mood itself.

The immense number of parts modified in each emotion is what makes it so difficult for us to reproduce in cold blood the total and integral expression of any one of them. We may catch the trick with the voluntary muscles, but fail with the skin, glands, heart, and other viscera. Just as an artificially imitated sneeze lacks something of the reality, so the attempt to imitate an emotion in the absence of its normal instigating cause is apt to be rather "hollow".

The next thing to be noticed is this, that every one of the bodily changes, whatsoever it be, is *felt*, acutely or obscurely, the moment it occurs. If the reader has never paid attention to this matter, he will be both interested and astonished to learn how many different local bodily feelings he can detect in himself as characteristic of his various emotional moods. It would be perhaps too much to expect him to arrest the tide of any strong gust of passion for the sake of any such curious analysis as this; but he can observe more tranquil states, and that may be assumed here to be true of the greater which is shown to be true of the less. Our whole cubic capacity is sensibly alive; and each morsel of it contributes its pulsations of feeling, dim or sharp, pleasant, painful, or dubious, to that sense of personality that every one of us unfailingly carries with him. It is surprising what little items give accent to these complexes of sensibility.

When worried by any slight trouble, one may find that the focus of one's bodily consciousness is the contraction, often quite inconsiderable, of the eyes and brows. When momentarily embarrassed, it is something in the pharynx that compels either a swallow, a clearing of the throat, or a slight cough; and so on for as many more instances as might be named. Our concern here being with the general view rather than with the details, I will not linger to discuss these but, assuming the point admitted that every change that occurs must be felt, I will pass on.[1]

I now proceed to urge the vital point of my whole theory, which is this. If we fancy some strong emotion, and then try to abstract from our consciousness of it all the feelings of its characteristic bodily symptoms, we find we have nothing left behind, no "mind-stuff" out of which the emotion can be constituted, and that a cold and neutral state of intellectual perception is all that remains. It is true, that although most people, when asked, say that their introspection verifies this statement, some persist in saying theirs does not. Many cannot be made to understand the question. When you beg them to imagine away every feeling of laughter and of tendency to laugh from their consciousness of the ludicrousness of an object, and then to tell you what the feeling of its ludicrousness would be like, whether it be anything more than the perception that the object belongs to the class "funny," they persist in replying that the thing proposed is a physical impossibility, and that they always *must* laugh, if they see a funny object. Of course the task proposed is not the practical one of seeing a ludicrous object and annihilating one's tendency to laugh. It is the purely speculative one of subtracting certain elements of feeling from an emotional state supposed to exist in its fulness, and saying what the residual elements are. I cannot help thinking that all who rightly apprehend this problem will agree with the proposition above laid down. What kind of an emotion of fear would be left, if the feelings neither of quickened heart-beats nor of shallow breathing, neither of trembling lips nor of weakened limbs, neither of goose-flesh nor of visceral stirrings, were present, it is quite impossible to think. Can one fancy the state of rage and picture no ebullition of it in the chest, no flushing of the face, no dilatation of the nostrils, no clenching of the teeth, no impulse to vigorous action, but in their stead limp muscles, calm breathing, and a placid face? The present writer, for one, certainly cannot. The rage is as completely evaporated as the sensation of its so-called manifestations, and the only thing that can possibly be supposed to take its place is some cold-blooded and dispassionate judicial sentence, confined entirely to the intellectual realm, to the effect that a certain person or persons merit chastisement for their sins. In like manner of grief: what would it be without its tears, its sobs, its suffocation of the heart, its pang in the breast-bone? A feelingless cognition that certain circumstances are deplorable, and nothing more. Every passion in turn tells the same story. A purely disembodied human emotion is a nonentity. I do not say that it is a contradiction in the nature of things, or that pure spirits are necessarily condemned to cold intellectual lives; but I say that for *us*, emotion dissociated from all bodily feeling is inconceivable. The more closely I scrutinise my states, the more persuaded I become, that whatever moods, affections, and passions I have, are in very truth constituted by, and made up of, those bodily changes we ordinarily call their expression or consequence; and the more it seems to me that if I were to become corporeally anæsthetic, I should be excluded from the life of the affections, harsh and tender alike, and drag out an existence of merely cognitive or intellectual form. Such an existence, although it seems to have been the ideal of ancient sages, is too apathetic to be keenly sought after by those born after the revival of the worship of sensibility, a few generations ago.

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[1] Of course the physiological question arises, *how* are the changes felt?—*after* they are produced, by the sensory nerves of the organs bringing back to the brain a report of the modifications that have occurred? or *before* they are produced, by our being conscious of the outgoing nerve-currents starting on their way downward towards the parts they are to excite? I believe all the evidence we have to be in favour of the former alternative. The question is too minute for discussion here, but I have said something about it in a paper entitled "The Feeling of Effort," in the *Anniversary Memoirs of the Boston Natural History Society*, 1880 (translated in *La Critique Philosophique* for that year, and summarised in MIND XX., 582). See also G. E. Müller's *Grundlegung der Psychophysik*, § 110.

But if the emotion is nothing but the feeling of the reflex bodily effects of what we call its "object," effects due to the connate adaptation of the nervous system to that object, we seem immediately faced by this objection: most of the objects of civilised men's emotions are things to which it would be preposterous to suppose their nervous systems connately adapted. Most occasions of shame and many insults are purely conventional, and vary with the social environment. The same is true of many matters of dread and of desire, and of many occasions of melancholy and regret. In these cases, at least, it would seem that the ideas of shame, desire, regret, &c., must first have been attached by education and association to these conventional objects before the bodily changes could possibly be awakened. And if in *these* cases the bodily changes follow the ideas, instead of giving rise to them, why not then in all cases?

To discuss thoroughly this objection would carry us deep into the study of purely intellectual Æsthetics. A few words must here suffice. We will say nothing of the argument's failure to distinguish between the idea of an emotion and the emotion itself. We will only recall the well-known evolutionary principle that when a certain power has once been fixed in an animal by virtue of its utility in presence of certain features of the environment, it may turn out to be useful in presence of other features of the environment that had originally nothing to do with either producing or preserving it. A nervous tendency to discharge being once there, all sorts of unforeseen things may pull the trigger and let loose the effects. That among these things should be conventionalities of man's contriving is a matter of no psychological consequence whatever. The most important part of my environment is my fellow-man. The consciousness of his attitude towards me is the perception that normally unlocks most of my shames and indignations and fears. The extraordinary sensitiveness of this consciousness is shown by the bodily modifications wrought in us by the awareness that our fellow-man is noticing us *at all*. No one can walk across the platform at a public meeting with just the same muscular innervation he uses to walk across his room at home. No one can give a message to such a meeting without organic excitement. "Stage-fright" is only the extreme degree of that wholly irrational personal self-consciousness which every one gets in some measure, as soon as he feels the eyes of a number of strangers fixed upon him, even though he be inwardly convinced that their feeling towards him is of no practical account.[1] This being so, it is not surprising that the additional persuasion that my fellow-man's attitude means either well or ill for me, should awaken stronger emotions still. In primitive societies "Well" may mean handing me a piece of beef, and "Ill" may mean aiming a blow at my skull. In our "cultured age," "Ill" may mean cutting me in the street, and "Well," giving me an honorary degree. What the action itself may be is quite insignificant, so long as I can perceive in it intent or *animus*. *That* is the emotion-arousing perception; and may give rise to as strong bodily convulsions in me, a civilised man experiencing the treatment of an artificial society, as in any savage prisoner of war, learning whether his captors are about to eat him or to make him a member of their tribe.

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[1] Let it be noted in passing that this personal self-consciousness seems an altogether bodily affair, largely a consciousness of our attitude, and that, like other emotions, it reacts on its physical condition, and leads to modifications of the attitude,—to a certain rigidity in most men, but in children to a regular twisting and squirming fit, and in women to various gracefully shy poses.

But now, this objection disposed of, there arises a more general doubt. Is there any evidence, it may be asked, for the assumption that particular perceptions *do* produce widespread bodily effects by a sort of immediate physical influence, antecedent to the arousal of an emotion or emotional idea?

The only possible reply is, that there is most assuredly such evidence. In listening to poetry, drama, or heroic narrative, we are often surprised at the cutaneous shiver which like a sudden wave flows over us, and at the heart-swelling and the lachrymal effusion that unexpectedly catch us at intervals. In listening to music, the same is even more strikingly true. If we abruptly see a dark moving form in the woods, our heart stops beating, and we catch our breath instantly and before any articulate idea of danger can arise. If our friend goes near to the edge of a precipice, we get the well-known feeling of "all-overishness," and we shrink back, although we positively *know* him to be safe, and have no distinct imagination of his fall. The writer well remembers his astonishment, when a boy of seven or eight, at fainting when he saw a horse bled. The blood was in a bucket, with a stick in it, and, if memory does not deceive him, he stirred it round and saw it drip from the stick with no feeling save that of childish curiosity. Suddenly the world grew black before his eyes, his ears began to buzz, and he knew no more. He had never heard of the sight of blood producing faintness or sickness, and he had so little repugnance to it, and so little apprehension of any other sort of danger from it, that even at that tender age, as he well remembers, he could not help wondering how the mere physical presence of a pailful of crimson fluid could occasion in him such formidable bodily effects.

Imagine two steel knife-blades with their keen edges crossing each other at right angles, and moving too and fro. Our whole nervous organisation is "on-edge" at the thought; and yet what emotion can be there except the unpleasant nervous feeling itself, or the dread that more of it may come?

The entire fund and capital of the emotion here is the senseless bodily effect the blades immediately arouse. This case is typical of a class: where an ideal emotion seems to precede the bodily symptoms, it is often nothing but a representation of the symptoms themselves. One who has already fainted at the sight of blood may witness the preparations for a surgical operation with uncontrollable heart-sinking and anxiety. He anticipates certain feelings, and the anticipation precipitates their arrival. I am told of a case of morbid terror, of which the subject confessed that what possessed her seemed, more than anything, to be the fear of fear itself. In the various forms of what Professor Bain calls "tender emotion," although the appropriate object must usually be directly contemplated before the emotion can be aroused, yet sometimes thinking of the symptoms of the emotion itself may have the same effect. In sentimental natures, the thought of "yearning" will produce real "yearning". And, not to speak of coarser examples, a mother's imagination of the caresses she bestows on her child may arouse a spasm of parental longing.

In such cases as these, we see plainly how the emotion both begins and ends with what we call its effects or manifestations. It has no mental *status* except as either the presented feeling, or the idea, of the manifestations; which latter thus constitute its entire material, its sum and substance, and its stock-in-trade. And these cases ought to make us see how in all cases the feeling of the manifestations may play a much deeper part in the constitution of the emotion than we are wont to suppose.

If our theory be true, a necessary corollary of it ought to be that any voluntary arousal of the so-called manifestations of a special emotion ought to give us the emotion itself. Of course in the majority of emotions, this test is inapplicable; for many of the manifestations are in organs over which we have no volitional control. Still, within the limits in which it can be verified, experience fully corroborates this test. Everyone knows how panic is increased by flight, and how the giving way to the symptoms of grief or anger increases those passions themselves. Each fit of sobbing makes the sorrow more acute, and calls forth another fit stronger still, until at last repose only ensues with lassitude and with the apparent exhaustion of the machinery. In rage, it is notorious how we "work ourselves up" to a climax by repeated outbreaks of expression. Refuse to express a passion, and it dies. Count ten before venting your anger, and its occasion seems ridiculous.

Whistling to keep up courage is no mere figure of speech. On the other hand, sit all day in a moping posture, sigh, and reply to everything with a dismal voice, and your melancholy lingers. There is no more valuable precept in moral education than this, as all who have experience know: if we wish to conquer undesirable emotional tendencies in ourselves, we must assiduously, and in the first instance cold-bloodedly, go through the *outward motions* of those contrary dispositions we prefer to cultivate. The reward of persistency will infallibly come, in the fading out of the sullenness or depression, and the advent of real cheerfulness and kindliness in their stead. Smooth the brow, brighten the eye, contract the dorsal rather than the ventral aspect of the frame, and speak in a major key, pass the genial compliment, and your heart must be frigid indeed if it do not gradually thaw!

The only exceptions to this are apparent, not real. The great emotional expressiveness and mobility of certain persons often lead us to say "They would feel more if they talked less". And in another class of persons, the explosive energy with which passion manifests itself on critical occasions, seems correlated with the way in which they bottle it up during the intervals. But these are only eccentric types of character, and within each type the law of the last paragraph prevails. The sentimentalist is so constructed that "gushing" is his or her normal mode of expression. Putting a stopper on the "gush" will only to a limited extent cause more "real" activities to take its place; in the main it will simply produce listlessness. On the other hand the ponderous and bilious "slumbering volcano," let him repress the expression of his passions as he will, will find them expire if they get no vent at all; whilst if the rare occasions multiply which he deems worthy of their outbreak, he will find them grow in intensity as life proceeds.

I feel persuaded there is no real exception to the law. The formidable effects of suppressed tears might be mentioned, and the calming results of speaking out your mind when angry and having done with it. But these are also but specious wanderings from the rule. Every perception must lead to *some* nervous result. If this be the normal emotional expression, it soon expends itself, and in the natural course of things a calm succeeds. But if the normal issue be blocked from any cause, the currents may under certain circumstances invade other tracts, and there work different and worse effects. Thus vengeful brooding may replace a burst of indignation; a dry heat may consume the frame of one who fain would weep, or he may, as Dante says, turn to stone within; and then tears or a storming-fit may bring a grateful relief. When we teach children to repress their emotions, it is not that they may *feel* more, quite the reverse. It is that they may *think* more; for to a certain extent whatever nerve-currents are diverted from the regions below, must swell the activity of the thought-tracts of the brain.[1]

The last great argument in favour of the priority of the bodily symptoms to the felt emotion, is the ease with which we formulate by its means pathological cases and normal cases under a common scheme. In every asylum we find examples of absolutely unmotived fear, anger, melancholy, or conceit; and others of an equally unmotived apathy which persists in spite of the best of outward reasons why it should give way. In the former cases we must suppose the nervous machinery to be so "labile" in some one emotional direction, that almost every stimulus, however inappropriate, will cause it to upset in that way, and as a consequence to engender the particular complex of feelings of which the psychic body of the emotion consists. Thus, to take one special instance, if inability to draw deep breath, fluttering of the heart, and that peculiar epigastric change felt as "precordial anxiety," with an irresistible tendency to take a somewhat crouching attitude and to sit still, and with perhaps other visceral processes not now known, all spontaneously occur together in a certain person; his feeling of their combination *is* the emotion of dread, and he is the victim of what is known as morbid fear. A friend who has had occasional attacks of this most distressing of all maladies, tells me that in his case the whole drama seems to centre about the region of the heart and respiratory apparatus, that his main effort during the attacks is to get control of his inspirations and to slow his heart, and that the moment he attains to breathing deeply and to holding himself erect, the dread, *ipso facto*, seems to depart.[2]

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[1] This is the opposite of what happens in injuries to the brain, whether from outward violence, inward rupture or tumor, or mere starvation from disease. The cortical permeability seems reduced, so that excitement, instead of propagating itself laterally through the ideational channels as before, tends to take the downward track into the organs of the body. The consequence is that we have tears, laughter, and temper-fits, on the most insignificant provocation, accompanying a proportional feebleness in logical thought and the power of volitional attention and decision.

[2] It must be confessed that there are cases of morbid fear in which objectively the heart is not much perturbed. These however fail to prove anything against our theory, for it is of course possible that the cortical

The account given to Brachet by one of his own patients of her opposite condition, that of emotional insensibility, has been often quoted, and deserves to be quoted again:—

> "I still continue (she says) to suffer constantly; I have not a moment of comfort, and no human sensations. Surrounded by all that can render life happy and agreeable, still to me the faculty of enjoyment and of feeling is wanting—both have become physical impossibilities. In everything, even in the most tender caresses of my children, I find only bitterness. I cover them with kisses, but there is something between their lips and mine; and this horrid something is between me and all the enjoyments of life. My existence is incomplete. The functions and acts of ordinary life, it is true, still remain to me; but in every one of them there is something wanting—to wit, the feeling which is proper to them, and the pleasure which follows them. . . . *Each of my senses, each part of my proper self, is as it were separated from me and can no longer afford me any feeling; this impossibility seems to depend upon a void which I feel in the front of my head, and to be due to the diminution of the sensibility over the whole surface of my body, for it seems to me that I never actually reach the objects which I touch. . . . I feel well enough the changes of temperature on my skin*, but *I no longer experience the internal feeling of the air when I breathe.* . . . All this would be a small matter enough, but for its frightful result, which is that of the impossibility of any other kind of feeling and of any sort of enjoyment, although I experience a need and desire of them that render my life an incomprehensible torture. Every function, every action of my life remains, but deprived of the feeling that belongs to it, of the enjoyment that should follow it. My feet are cold, I warm them, but gain no pleasure from the warmth. I recognise the taste of all I eat, without getting any pleasure from it. . . . My children are growing handsome and healthy, everyone tells me so, I see it myself, but the delight, the inward comfort I ought to feel, I fail to get. Music has lost all charm for me, I used to love it dearly. My daughter plays very well, but for me it is mere noise. That lively interest which a year ago made me hear a delicious concert in the smallest air their fingers played,—that thrill, that general vibration which made me shed such tender tears,—all that exists no more."[1]

Other victims describe themselves as closed in walls of

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centres normally percipient of dread as a complex of cardiac and other organic sensations due to real bodily change, should become *primarily* excited in brain-disease, and give rise to an hallucination of the changes being there,—an hallucination of dread, consequently, coexistent with a comparatively calm pulse, &c. I say it is possible, for I am ignorant of observations which might test the fact. Trance, ecstasy, &c., offer analogous examples,—not to speak of ordinary dreaming. Under all these conditions one may have the liveliest subjective feelings, either of eye or ear, or of the more visceral and emotional sort, as a result of pure nerve-central activity, with complete peripheral repose. Whether the subjective strength of the feeling be due in these cases to the actual energy of the central disturbance, or merely to the narrowing of the field of consciousness, need not concern us. In the asylum cases of melancholy, there is usually a narrowing of the field.

[1] Quoted by Semal: *De la Sensibilité générale dans les Affections mélancoliques*, Paris, 1876, pp. 130-135.

ice or covered with an india-rubber integument, through which no impression penetrates to the sealed-up sensibility.

If our hypothesis be true, it makes us realise more deeply than ever how much our mental life is knit up with our corporeal frame, in the strictest sense of the term. Rapture, love, ambition, indignation, and pride, considered as feelings, are fruits of the same soil with the grossest bodily sensations of pleasure and of pain. But it was said at the outset that this would be affirmed only of what we then agreed to call the "standard" emotions; and that those inward sensibilities that appeared devoid at first sight of bodily results should be left out of our account. We had better, before closing, say a word or two about these latter feelings.

They are, the reader will remember, the moral, intellectual, and æsthetic feelings. Concords of sounds, of colours, of lines, logical consistencies, teleological fitnesses, affect us with a pleasure that seems ingrained in the very form of the representation itself, and to borrow nothing from any reverberation surging up from the parts below the brain. The Herbartian psychologists have tried to distinguish feelings due to the *form* in which ideas may be arranged. A geometrical demonstration may be as "pretty," and an act of justice as "neat" as a drawing or a tune, although the prettiness and neatness seem here to be a pure matter of sensation, and there to have nothing to do with sensation. We have then, or some of us seem to have, genuinely *cerebral* forms of pleasure and displeasure, apparently not agreeing in their mode of production with the so-called "standard" emotions we have been analysing. And it is certain that readers whom our reasons have hitherto failed to convince, will now start up at this admission, and consider that by it we give up our whole case. Since musical perceptions, since logical ideas, can immediately arouse a form of emotional feeling, they will say, is it not more natural to suppose that in the case of the so-called "standard" emotions, prompted by the presence of objects or the experience of events, the emotional feeling is equally immediate, and the bodily expression something that comes later and is added on?

But a sober scrutiny of the cases of pure cerebral emotion gives little force to this assimilation. Unless in them there actually be coupled with the intellectual feeling a bodily reverberation of some kind, unless we actually laugh at the neatness of the mechanical device, thrill at the justice of the act, or tingle at the perfection of the musical form, our mental condition is more allied to a judgment of *right* than to anything else. And such a judgment is rather to be classed among awarenesses of truth: it is a *cognitive* act. But as a matter of fact the intellectual feeling hardly ever does exist thus unaccompanied. The bodily sounding-board is at work, as careful introspection will show, far more than we usually suppose. Still, where long familiarity with a certain class of effects has blunted emotional sensibility thereto as much as it has sharpened the taste and judgment, we do get the intellectual emotion, if such it can be called, pure and undefiled. And the dryness of it, the paleness, the absence of all glow, as it may exist in a thoroughly expert critic's mind, not only shows us what an altogether different thing it is from the "standard" emotions we considered first, but makes us suspect that almost the entire difference lies in the fact that the bodily sounding-board, vibrating in the one case, is in the other mute. "Not so very bad" is, in a person of consummate taste, apt to be the highest limit of approving expression. "*Rien ne me choque*" is said to have been Chopin's superlative of praise of new music. A sentimental layman would feel, and ought to feel, horrified, on being admitted into such a critic's mind, to see how cold, how thin, how void of human significance, are the motives for favour or disfavour that there prevail. The capacity to make a nice spot on the wall will outweigh a picture's whole content; a foolish trick of words will preserve a poem; an utterly meaningless fitness of sequence in one musical composition set at naught any amount of "expressiveness" in another.

I remember seeing an English couple sit for more than an hour on a piercing February day in the Academy at Venice before the celebrated "Assumption" by Titian; and when I, after being chased from room to room by the cold, concluded to get into the sunshine as fast as possible and let the pictures go, but before leaving drew reverently near to them to learn with what superior forms of susceptibility they might be endowed, all I overheard was the woman's voice murmuring: "What a *deprecatory* expression her face wears! What self-abneg*ation!* How *unworthy* she feels of the honour she is receiving!" Their honest hearts had been kept warm all the time by a glow of spurious sentiment that would have fairly made old Titian sick. Mr. Ruskin somewhere makes the (for him) terrible admission that religious people as a rule care little for pictures, and that when they do care for them they generally prefer the worst ones to the best. Yes! in every art, in every science, there is the keen perception of certain relations being *right* or not, and there is the emotional flush and thrill consequent thereupon. And these are two things, not one. In the former of them it is that experts and masters are at home. The latter accompaniments are bodily commotions that they may hardly feel, but that may be experienced in their fulness by *Crétins* and Philistines in whom the critical judgment is at its lowest ebb. The "marvels" of Science, about which so much edifying popular literature is written, are apt to be "caviare" to the men in the laboratories. Cognition and emotion are parted even in this last retreat,—who shall say that their antagonism may not just be one phase of the world-old struggle known as that between the spirit and the flesh?—a struggle in which it seems pretty certain that neither party will definitively drive the other off the field.

To return now to our starting-point, the physiology of the brain. If we suppose its cortex to contain centres for the perception of changes in each special sense-organ, in each portion of the skin, in each muscle, each joint, and each viscus, and to contain absolutely nothing else, we still have a scheme perfectly capable of representing the process of the emotions. An object falls on a sense-organ and is apperceived by the appropriate cortical centre; or else the latter, excited in some other way, gives rise to an idea of the same object. Quick as a flash, the reflex currents pass down through their pre-ordained channels, alter the condition of muscle, skin and viscus; and these alterations, apperceived like the original object, in as many specific portions of the cortex, combine with it in consciousness and transform it from an object-simply-apprehended into an object-emotionally-felt. No new principles have to be invoked, nothing is postulated beyond the ordinary reflex circuit, and the topical centres admitted in one shape or another by all to exist.

It must be confessed that a crucial test of the truth of the hypothesis is quite as hard to obtain as its decisive refutation. A case of complete internal and external corporeal anæsthesia, without motor alteration or alteration of intelligence except emotional apathy, would afford, if not a crucial test, at least a strong presumption, in favour of the truth of the view we have set forth; whilst the persistence of strong emotional feeling in such a case would completely overthrow our case. Hysterical anæsthesias seem never to be complete enough to cover the ground. Complete anæsthesias from organic disease, on the other hand, are excessively rare. In the famous case of Remigius Leims, no mention is made by the reporters of his emotional condition, a circumstance which by itself affords no presumption that it was normal, since as a rule nothing ever *is* noticed without a pre-existing question in the mind. Dr. Georg Winter has recently described a case somewhat similar,[1] and in reply to a question, kindly writes to me as follows:—"The case has been for a year and a half entirely removed from my observation. But so far as I am able to state, the man was characterised by a certain mental inertia and indolence. He was tranquil, and had on the whole the temperament of a phlegmatic. He was not irritable, not quarrelsome, went quietly about his farm-work, and left the care of his business and housekeeping to other people. In short, he gave one the impression of a placid countryman, who has no interests beyond his work." Dr. Winter adds that in studying the case he paid no particular attention to the man's psychic condition, as this seemed "*nebensächlich*" to his main purpose. I should add that the form of my question to Dr. Winter could give him no clue as to the kind of answer I expected.

Of course, this case proves nothing, but it is to be hoped that asylum-physicians and nervous specialists may begin methodically to study the relation between anæsthesia and emotional apathy. If the hypothesis here suggested is ever to be definitively confirmed or disproved it seems as if it must be by them, for they alone have the data in their hands.

P.S.—By an unpardonable forgetfulness at the time of despatching my MS. to the Editor, I ignored the existence of the extraordinary case of total anæsthesia published by Professor Strümpell in *Ziemssen's Deutsches Archiv für klinische Medicin* xxii., 321, of which I had nevertheless read reports at the time of its publication. [*Cf.* first report of the case in MIND X., 263, translated from *Pflüger's Archiv.* ED.] I believe that it constitutes the only remaining case of the sort in medical literature, so that with it our survey is complete. On referring to the original, which is important in many connexions, I found that the patient, a shoemaker's apprentice of 15, entirely anæsthetic, inside and out, with the exception of one eye and one ear, had shown *shame* on the occasion of soiling his bed, and *grief*, when a formerly favourite dish was set before him, at the thought that he could no longer taste its flavour. As Dr. Strümpell seemed however to have paid no special attention to his psychic states, so far as these are matter for our theory, I wrote to him in a few words what the essence of the theory was, and asked him to say whether he felt sure the grief and shame mentioned were real feelings in the boy's mind, or only the reflex manifestations provoked by certain perceptions, manifestations that an outside observer might note, but to which the boy himself might be insensible.

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[1] "Ein Fall von allgemeiner Anæsthesie," *Inaugural-Dissertation.* Heidelberg, Winter, 1882.

Dr. Strümpell has sent me a very obliging reply, of which I translate the most important passage.

"I must indeed confess that I naturally failed to institute with my *Anæsthetiker* observations as special as the sense of your theory would require. Nevertheless I think I can decidedly make the statement, that he was by no means completely lacking in emotional affections. In addition to the feelings of *grief* and *shame* mentioned in my paper, I recall distinctly that he showed *e.g.*, *anger*, and frequently quarrelled with the hospital attendants. He also manifested *fear* lest I should punish him. In short, I do not think that my case speaks exactly in favour of your theory. On the other hand, I will not affirm that it positively refutes your theory. For my case was certainly one of a very centrally conditioned anæsthesia (perception-anæsthesia, like that of hysterics) and therefore the conduction of outward impressions may in him have been undisturbed."

I confess that I do not see the relevancy of the last consideration, and this makes me suspect that my own letter was too briefly or obscurely expressed to put my correspondent fully in possession of my own thought. For his reply still makes no explicit reference to anything but the outward manifestations of emotion in the boy. Is it not at least conceivable that, just as a stranger, brought into the boy's presence for the first time, and seeing him eat and drink and satisfy other natural necessities, would suppose him to have the feelings of hunger, thirst, &c., until informed by the boy himself that he did all these things with no feeling at all but that of sight and sound—is it not, I say, at least possible, that Dr. Strümpell, addressing no direct introspective questions to his patient, and the patient not being of a class from which one could expect voluntary revelations of that sort, should have similarly omitted to discriminate between a feeling and its habitual motor accompaniment, and erroneously taken the latter as proof that the former was there? Such a mistake is of course possible, and I must therefore repeat Dr. Strümpell's own words, that his case does not yet refute my theory. Should a similar case recur, it ought to be interrogated as to the inward emotional state that co-existed with the outward expressions of shame, anger, &c. And if it then turned out that the patient recognised explicitly the same mood of feeling known under those names in his former normal state, my theory would of course fall. It is, however, to me incredible that the patient should have an *identical* feeling, for the dropping out of the organic sounding-board would necessarily diminish its volume in some way. The teacher of Dr. Strümpell's patient found a mental deficiency in him during his anæsthesia, that may possibly have been due to the consequences resulting to his general intellectual vivacity from the subtraction of so important a mass of feelings, even though they were not the whole of his emotional life. Whoever wishes to extract from the next case of total anæsthesia the maximum of knowledge about the emotions, will have to interrogate the patient with some such notion as that of my article in his mind. We can define the pure psychic emotions far better by starting from such an hypothesis and modifying it in the way of restriction and subtraction, than by having no definite hypothesis at all. Thus will the publication of my article have been justified, even though the theory it advocates, rigorously taken, be erroneous. The best thing I can say for it is, that in writing it, I have almost persuaded *myself* it may be true.

III.—LA RECTIFICATION DES ILLUSIONS PAR L'APPEL AUX SENS.

Par Alfred Binet.

I.

Le moyen le plus simple et le plus sûr de découvrir une illusion des sens est de recourir à l'expérience. On entend par là le contrôle du sens qui paraît compromis, par un autre sens. Ainsi, dans la plupart des illusions d'optique, les erreurs de la vue sont découvertes par le toucher : une image produite par une lentille, et qui paraît réelle, est reconnue comme virtuelle, lorsque la main, en explorant le champ de la vision, ne rencontre pas de résistance au point de l'espace que l'image paraît occuper. Les illusions du toucher, à leur tour, peuvent être reconnues par l'œil, comme lorsque la vue distingue les deux pointes de compas assez rapprochées pour donner une sensation unique à la peau (expérience de Weber), ou que la vue reconnaît l'existence d'une boule unique là ou le toucher croit en sentir deux (expérience d'Aristote).

Avant d'analyser ces procédés de contrôle, il faut s'arrêter à une observation préliminaire ; c'est que les sensations fournies par les différents sens different entre elles qualitativement. Il n'existe aucun rapport d'aucune sorte entre des couleurs, par exemple, et des impressions de résistance. Comment donc peut-on conçevoir que le témoignage d'un de nos sens soit capable de corriger ou seulement de contredire celui des autres ? Comment l'œil, qui n'est sensible qu'à la lumière, et qui, de quelque façon qu'on l'excite, ne répond jamais que par des sensations lumineuses, peut-il être en désaccord avec le toucher, dont l'objet propre est la pression, la température, l'état physique des corps ? Où rien n'est commun il ne peut y avoir opposition.

D'ailleurs, pour comprendre qu'un combat fut possible entre des sens différents, il faudrait admettre que les sens peuvent se tromper. C'était l'opinion des anciens ; on reconnaît aujourd'hui que dans les illusions la faute n'est pas imputable à l'organe sensitif, mais à l'interprétation de l'esprit. L'illusion est un phénomène mixte, composé par l'association d'impressions réelles et d'images mentales ; les impressions des sens sont toujours ce qu'elles doivent être, étant donné la nature de l'excitant extérieur et l'état de l'organe sensitif. Ce sont les images mentales qui sont fausses, de sorte que l'illusion peut être définie: une représentation inexacte d'un phénomène extérieur, à la suite d'une excitation sensorielle ; ou bien une synthèse mal faite ; ou encore (si l'on considère la perception exacte comme le résultat d'une inférence) un raisonnement faux, un sophisme. Quelle que soit la définition qu'on adopte, on voit que la correction d'une illusion par l'appel aux sens ne peut mettre en conflit deux sens différents ; le combat s'engage entre un sens et une opération de l'esprit.

L'observation directe des faits confirme cette proposition. Prenons l'expérience d' Aristote, qui consiste en ceci : si on croise l'index et le medius l'un sur l'autre et qu'on roule entre ces deux doigts une petite boule, on croit (en fermant les yeux) toucher deux boules distinctes, l'une en dehors de l'index, l'autre en dedans du medius. Cette illusion tactile tient à ce que la boule unique impressionne en même temps le bord radial de l'index et le bord cubital du medius. Or, dans la position normale des doigts, l'œil perçoit deux objets et non un seul, quand ces deux bords sont impressionnés simultanément ; c'est l'habitude qui engendre cette tendance au dédoublement. Mais il suffit d'ouvrir les yeux et de regarder ses doigts pour que l'illusion des deux boules cesse aussitôt.

L'intervention de la vue corrige l'illusion à laquelle donnent lieu des impressions du toucher ; mais peut-on dire pour cela que la vue corrige le toucher ? assurément non, car le toucher n'a jamais été en défaut. L'illusion a consisté dans une interprétation inexacte des sensations tactiles ; l'esprit a eu le tort de combiner avec ces sensations l'image mentale de deux boules occupant deux positions différentes, l'une en dehors de l'index, l'autre en dedans du medius. C'est cette image mentale qui est fausse ; or, comme cette image est *visuelle*, il est naturel que la vue puisse la corriger. Lorsque nous constatons, les yeux ouverts, que nous tenons entre les mains un seul objet, la sensation visuelle entre en conflit avec une idée visuelle.

Il existe un grand nombre d'illusions tactiles dont la rectification par la vue s'explique de la même façon ; telles sont l'illusion d'humidité qu'on éprouve en passant la main sur une surface froide et polie, les illusions si variées que provoquent les sensations subjectives de chaud, de froid, de picotement, de fourmillement etc. Ces sensations anormales éveillent par association des représentations visuelles que la vue corrige et détruit. Considérée dans sa source, l'illusion est tactile ; considérée dans sa nature, elle est visuelle.

Quand c'est le toucher qui rectifie l'erreur des yeux comme dans les illusions d'optique, on a le phénomène inverse. Ajustons[1] dans une monture de lunette deux prismes de verre, dont les angles réfringents soient de 16° à 18°, et tournés à gauche ; vus à travers ces deux prismes, tous les objets du champ visuel paraissent déplacés vers la gauche. Mais la main peut rectifier cette fausse apparence en constatant que les objets n'occupent pas le point du champ visuel où on les localise. Dans ce cas, peut-on dire que le toucher rectifie la vue ? Non, car la vue ne nous trompe pas ; aucun sens ne nous trompe. L'œil ne possède pas la faculté innée d'apprécier la position relative des corps dans l'espace ; et par conséquent la fausse appréciation de cette position ne provient pas de l'œil, mais de l'esprit. L'illusion a consisté dans le fait de combiner avec les sensations visuelles une notion fausse de la direction des objets ; cette notion, cette représentation de l'esprit est, dans sa nature, tactile et musculaire ; elle est formeé par le renouvellement d'impressions du toucher et du sens musculaire qui ont été éprouvées à une époque antérieure. Il est donc naturel que la main puisse rectifier une telle représentation quand elle est fausse.

On constate que lorsqu'on a répété l'expérience du prisme un certain nombre de fois, en touchant les objets sous la direction du regard, on parvient à tenir compte de la déviation des rayons lumineux ; en recommençant l'expérience avec les yeux fermés, on ne passe plus à côté des objets, comme en débutant, mais on les atteint exactement. Lorsqu'on est arrivé à ce point, qu'on retire la main, et après avoir regardé un objet pendant quelque temps sans l'intermédiaire des prismes, qu'on essaye de le saisir en tenant les yeux fermés : la main passe à droite.

Il y a un point délicat dans l'interprétation de cette série d'expériences. On pourrait croire que nous avons cessé d'apprécier la position exacte de notre main et la direction exacte de la ligne qu'elle parcourt, et que c'est à ce prix que l'accord s'est établi entre le toucher et la perception visuelle. Cela reviendrait à admettre que la représentation mentale de la direction des objets, au lieu d'être corrigée par l'expérience réelle de cette direction, peut fausser et dénaturer cette expérience. Helmholtz a pris de soin de réfuter cette objection.[2] Il a montré que c'est la représentation mentale qui reçoit, à la suite des tâtonnements de la main pour saisir l'objet, la modification qui la fait correspondre à la position vraie des objets, position que le sens du toucher ne cesse pas de déterminer exactement. En effet, il suffit, lorsqu'on s'est habitué en presence des prismes à atteindre les objets avec la main droite, de faire l'expérience avec la main gauche, en fermant les yeux ; bien que cette main n'est pas encore paru dans le champ visuel, elle atteint alors les objets avec exactitude et sans hésitation.

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[1] Helmholtz, *Optique physiologique*, p. 765 de la traduction française.

[2] Helmholtz, *ibid.*

Cet exemple dispensera d'insister sur la rectification d'autres illusions d'optique, qui consistent dans la localisation erronée d'un point lumineux, et qui tiennent à la déviation des rayons par réflexion, réfraction, diffraction, défaut d'accommodation etc.

On peut encore dire un mot du cas où, suivant le langage ordinaire, un sens se corrige lui-même. Parmi toutes les observations qu'on pourrait citer à ce sujet, nous en choisirons une qui a l'avantage de presenter à notre examen des illusions d'un genre particulier ; ce sont des illusions actives, spontanées, produites par le jeu de l'imagination, et non, comme les précédentes, par l'action uniforme de l'expérience passée. Souvent la disposition d'une étoffe, les plis d'une draperie éclairée par une lumière pâle et douteuse provoquent l'apparition d'une forme fantastique. On rapporte que Sir Walter Scott, dont l'esprit était fortement excité par le récit de la mort de Byron, vit, en se rendant dans sa salle à manger, l'image de son ami qui se reproduisait devant lui. Frappé du soin minutieux avec lequel l'imagination avait reproduit les particularités de l'habillement et la pose du grand poëte, il s'arrêta quelques instants ; puis, s'avançant plus près, il reconnut que cette vision était due à l'arrangement d'une tapisserie placée sur un écran. Dans les cas de ce genre, la vue claire et nette de la tapisserie entre en conflit avec la forme fantastique, la contredit, l'enraye et la fait finalement disparaître. La sensation visuelle détruit la représentation visuelle.

C'est par une action analogue que les personnes saines d'esprit ou les aliénés qui sont poursuivis, à l'arrivée de la nuit, par des illusions pénibles de la vue, font cesser ces phénomènes et se débarrassent de leurs visions en allumant leur bougie.

En résumé, la même règle se vérifie partout : l'état de conscience corrigé et l'état de conscience correcteur appartiennent toujours au même organe sensoriel. Ce qui jette de l'obscurité sur ce sujet, c'est l'habitude prise de rapporter l'illusion à l'organe dont les sensations la provoquent. Ainsi, l'illusion qui se forme dans l'expérience des deux doigts croisés sur une boule est appelée une illusion du toucher ;

les illusions d'optique sont appelées des illusions de la vue. Mais en réalité le caractère illusoire réside dans la partie mentale du phénomène, et non dans la sensation. L'illusion de l'expérience d'Aristote est visuelle ; les illusions d'optique sont généralement des erreurs du toucher et du sens musculaire. Si cette nouvelle terminologie était adoptée, on comprendrait sans explication que les illusions de la vue (expérience d'Aristote) sont corrigées uniquement par la vue, et celles du toucher et du sens musculaire (illusions d'optique) par la main.

Un autre caractère de ces procédés de rectification, c'est d'opposer l'un à l'autre deux ordres différents de connaissances, le raisonnement [1] et l'expérience directe. L'esprit se reporte de la connaissance représentative à la connaissance présentative, de ce qui est dérivé à ce qui est primitif, de la copie au modèle, de l'idée à la sensation. Nous faisons par instinct ce qu'on fait méthodiquement dans les sciences expérimentales, toutes les fois qu'il y a doute sur une question de fait : nous recourons à l'observation de la nature.

Il ne faut pas exagérer, cependant, le caractère de cette sorte de régression du composé au simple. L'appel au sens est une opération de la pensée qui dépasse toujours la sensation brute. Lorsque la vue intervient—dans l'expérience d'Aristote—pour constater l'existence de la boule unique, la sensation visuelle qu'on éprouve s'accompagne nécessairement de représentations de forme, de position etc. ; l'état de conscience correcteur est un état mixte ; il est mixte à un double titre ; d'abord parcequ'il est formé d'éléments sensoriels et d'éléments idéaux, et ensuite parceque ces éléments appartiennent à des sens différents. L'état de conscience corrigé a une composition analogue ; et il serait facile de démontrer que dans cette même expérience la représentation fausse des deux boules fait intervenir non seulement une idée visuelle, mais des idées de forme, de position etc. On voit combien ces phénomènes doivent être complexes. On ne peut pas se contenter de dire avec certains auteurs que la rectification d'une illusion se fait par la juxtaposition de deux états de conscience contradictoires. Cette formule est trop simple. Les deux états de conscience ne sont pas homogènes. L'idée de deux boules est, répétons le, une résultante de représentations de la vue, du toucher, du sens musculaire etc. ; et la vue de la boule unique est encore une résultante, qui diffère de la precédente en ce qu'elle contient à titre d'élément intégrant une impression sensorielle de la vue. Quand ces deux groupes d'états de conscience entrent en conflit, nous avons seulement conscience de la rectification totale, c'est à dire de ce fait que la notion de deux boules est chassée par la notion d'une boule unique; mais il doit se passer en même temps une série de rectifications partielles; chaque élément d'un groupe réagit sur l'élément correspondant de l'autre groupe, le visuel avec le visuel, le tactile avec le tactile, le musculaire avec le musculaire etc.; et ce sont ces petites rectifications partielles qui en s'ajoutant les unes aux autres forment le phénomène de la rectification totale, le seul qui arrive à la conscience.

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[1] Rappelons que l'illusion des sens est le résultat d'un raisonnement inconscient.

II.

Il faut maintenant étudier la nature et le mécanisme de la rectification, considérée comme opération psychologique. Cette étude présente plusieurs difficultés; avant de l'aborder directement, rappelons les recherches que M. Ribot a faites sur le phénomène qu'il a appelé le "pouvoir d'arrêt de la volonté" car il y a peut-être quelque analogie entre l'action inhibitoire d'une volition sur une autre volition, et l'action encore inconnue d'une sensation sur le développement d'une représentation mentale.[1]

Ce qu'on découvre tout d'abord, ce n'est pas une analogie, c'est une différence profonde. Le conflit de deux impulsions motrices contraires, qu'il s'agisse d'un cas banal, comme d'arrêter le rire, le baillement, la toux, ou d'un cas plus important, comme de maîtriser un violent accès de colère, aboutit toujours à l'un ou l'autre de ces deux résultats: un arrêt—ou la production d'un mouvement nouveau, différent du mouvement suspendu. Le conflit de deux états intellectuels, tel qu'on le voit se manifester dans la correction d'une illusion des sens, ne peut produire qu'un changement dans l'état de croyance; il aboutit, selon les cas, à l'indécision, au doute, ou à la négation de la croyance primitive et à l'établissement d'une croyance contraire. Ainsi d'une part, il y a un effet moteur; d'autre part, il y a un effet intellectuel: la différence est très nette. Mais une étude attentive des phénomènes montre que c'est là une de ces différences de surface dont il ne faut pas tenir compte, et qu'une lutte entre deux idées doit avoir la même nature et reconnaître le même mécanisme qu'une lutte entre deux volitions.

En effet, l'illusion des sens—et cela est vrai de toutes les opérations intellectuelles—ne forme pas un acte complet;

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[1] Ribot, *Maladies de la Volonté*, p. 13.

c'est un commencement, un début. C'est la loi que tout état de conscience tend à se dépenser en mouvement, que toute opération de la pensée a pour but l'action. Considérée à ce point de vue, la perception externe est la première partie d'un acte moteur, qui a le caractère d'une adaptation de l'individu à son milieu ; et l'illusion des sens, qui est une perception fausse, est la première partie d'un acte d'adaptation mal conçu, mal dirigé, avorté. Il en résulte que la correction d'une illusion des sens, par la modification qu'elle apporte dans les actes de l'individu, produit un phénomène d'arrêt.

On va faire un faux pas, sous la pression d'une illusion de la vue ; si avec la canne on rectifie l'illusion avant qu'elle ne passe à l'acte, le faux pas est évité ; la sensation reçue par l'intermédiaire de la canne, en supprimant la représentation fausse, en supprime du même coup l'effet moteur ; elle empêche donc, par voie indirecte, un mouvement qui allait se produire ; il y a bien là un phénomène d'arrêt. Seulement l'arrêt a lieu plus tôt que dans le cas où l'on réprime un mouvement par un acte de volonté ; le processus psychomoteur est suspendu dans sa phase psychique, au lieu d'être suspendu dans sa phase motrice ; c'est pour cette raison seule que l'arrêt a la forme d'une négation, c'est à dire d'un phénomène intellectuel, au lieu de consister dans le phénomène moteur d'une suspension de mouvement.

L'analogie s'étend encore plus loin. M. Ribot a très bien montré que le pouvoir volontaire d'arrêt n'est pas un fait primitif, mais un état de formation secondaire ; on peut en dire autant du pouvoir de contrôler le résultat de la perception externe ; ce sont là des appareils de perfectionnement surajoutés. Dans sa forme primitive, l'intelligence n'est que force impulsive ; l'étude des petits enfants, des sauvages et des animaux montre avec quelle rapidité et quelle fatalité chaque combinaison de la pensée se traduit en acte. Il y a dans ces natures primitives un besoin irrésistible de croire qui est corrélatif au besoin d'agir. A ce moment, le réflexe est véritablement le type de la vie de relation.

Mais l'organisme intellectuel se perfectionne avec le temps, et le perfectionnement ne consiste pas seulement dans une complication supérieure de l'appareil déjà existant, mais encore dans une formation absolument nouvelle, le pouvoir de coordination et d'arrêt. Il faut bien conçevoir que cette acquisition se fait dans deux sens à la fois, dans l'ordre de la connaissance et dans l'ordre de l'action ; l'individu acquiert en même temps le pouvoir de ralentir, de suspendre, de coordonner ses mouvements et de les faire converger vers un but choisi intentionnellement, et le pouvoir de diriger son activité intellectuelle, et de contrôler ses raisonnements et ses souvenirs en leur opposant d'autres raisonnements et d'autres souvenirs. Les deux acquisitions sont contemporaines. La conséquence la plus frappante de la première, c'est l'arrêt d'un mouvement; la conséquence la plus frappante de la seconde, c'est le doute.

De toutes ces analogies, on peut conclure avec une certaine sécurité que le fait intellectuel de la rectification et le fait moteur de la coordination et de l'arrêt sont deux actes qui reconnaissent le même mécanisme.

Ce mécanisme, quel est il? La physiologie seule pourrait nous le dire, mais les éclaircissements qu'elle nous donne sont très vagues. On sait encore peu de chose sur ces questions de dynamique nerveuse. Dans ces derniers temps,[1] on est parvenu à démontrer expérimentalement qu'une excitation nerveuse peut être détruite par une autre excitation, et qu'une contraction musculaire produite par un agent chimique peut être suspendue par l'application des électrodes sur le muscle, et inversement. On peut supposer que le système nerveux est normalement le siège de phénomènes analogues, des processus physiologiques suspendus par des processus contraires. Nous rappelons en passant l'hypothèse déjà ancienne des centres d'arrêt, dont la fonction consisterait à modérer ou à supprimer complétement l'action des autres centres. Cette hypothèse a l'avantage d'expliquer pourquoi les reflexes spinaux augmentent d'intensité quand la moelle est soustraite à l'influence du cerveau, soit physiologiquement, pendant le sommeil, soit expérimentalement, par la décapitation de l'animal, soit pathologiquement, par l'effet d'une myelite transverse ou de toute autre lésion établissant une solution de continuité entre une partie de la moelle et l'encéphale. Dans les cas de ce genre, l'action modératrice des centres encéphaliques serait suspendue, et il se produirait un phénomène comparable à l'accélération des battements du cœur par la section des pneumogastriques. On pourrait supposer un mécanisme analogue pour expliquer l'antagonisme de deux états de conscience et la suppression de l'un par l'autre. Mais la donnée sur laquelle on s'appuierait manque de solidité, car l'existence des centres d'arrêt n'est rien moins que démontrée. Beaucoup de physiologistes, Vulpian entre autres, se sont toujours montrés les ennemis de cette hypothèse.[2]

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[1] Bubnoff et Heidenhain, "Ueber Erregungs- und Hemmungs-Vorgänge" (*Pflüger's Archiv*, 1881).

[2] Consultez à ce sujet les auteurs cités par M. Ribot, p. 15 *et seq.*, et les derniers travaux de Brown-Séquard.

Laissons là ce problème physiologique, et tenons nous en aux données de la psychologie. Ce qu'il y a de certain, c'est que lorsqu'une sensation contredit une représentation, le premier état de conscience chasse et supprime le second. La sensation occupe seule tout le champ de l'esprit. Quand je fixe les yeux sur mes deux doigts croisés, je vois qu'il n'y a qu'une boule, et je ne puis, au même moment, quelque effort que je fasse, en imaginer deux. Cette supériorité de la sensation sur l'image tient en partie à une différence dans leur nature physique. On admet généralement que le processus nerveux de la sensation occupe la même région centrale que le processus de l'image, mais qu'en outre le premier processus implique la mise en activité des parties périphériques du système nerveux (organes sensoriels terminaux et nerfs centripètes) tandis que le second n'implique rien de semblable. Cette différence dans l'étendue de la surface d'excitation explique bien—toutes choses égales d'ailleurs—pourquoi le processus sensoriel a plus d'énergie et d'intensité que le processus idéal.

L'état de conscience qui réussit, pour quelque cause que ce soit, à se maintenir seul dans le champ de l'esprit passe seul à l'acte et détermine seul la croyance. La psychologie peut encore nous apprendre quelque chose sur ce point. Cet état passe seul à l'acte, d'abord parceque c'est la loi que tout état se transforme en mouvement, et ensuite parcequ'ici rien n'entrave sa tendance motrice : l'état antagoniste a été vaincu. Il détermine seul la croyance, d'abord parceque c'est la loi que tout état, sensoriel ou idéal, vrai ou faux, est accompagné d'une croyance (au moins momentanée) à l'existence réelle de son objet,[1] et ensuite parcequ' aucune image antagoniste ne vient dans notre cas enrayer cet effet psychique.

Nous avons dans le sommeil hypnotique un état analogue, mais produit par des causes toutes différentes. Le sujet hypnotisé est complétement à la merci de son magnétiseur ; il pense, il sent et il fait tout ce que son magnétiseur lui ordonne de penser, de sentir et de faire. Pourquoi ? C'est que l'état de conscience qu'on éveille en lui par des suggestions de différente nature "régne seul dans la conscience endormie,"[2] aucun autre état ne l'entrave. Tous les éléments intellectuels, sensitifs et moteurs, conscients, subconscients et inconscients, dont la résultante constitue la personnalité à l'état normal, sont temporairement paralysés. Aussi l'état suggéré développe-t-il tous les effets qui sont inhérents à sa nature. A l'état normal, on arrive bien au même résultat final ; le travail de la réflexion et de la délibération aboutit au choix d'une représentation à l'exclusion des autres. Mais cette prépondérance d'une représentation unique ne tient pas, comme dans le somnambulisme, à ce que tout le reste de l'intelligence est engourdi ; elle tient à ce que toutes les représentations contraires ont été annihilées. Le résultat n'a été atteint qu'avec plus ou moins d'efforts, et après des phénomènes souvent compliqués, dont il nous reste à étudier le détail.

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[1] Cette loi à été établie par Dugald Stewart, *Philosophie de l'esprit humain*, i., p. 107. *Cf.* Taine, *De l'Intelligence*, i., 89.

[2] Ribot, *loc. cit.*, p. 135 *et seq.*

III.

Le succès d'une rectification dépend de plusieurs conditions dont la première en importance est la nature propre de l'illusion à rectifier. Les auteurs qui ont écrit sur les illusions des sens ont remarqué que ces phénomènes peuvent être ramenés à deux types bien distincts. Il y a des illusions solides et durables, soutenues par l'action d'une longue expérience passée ; ce sont les illusions que M. Sully qualifie de *passives*. D'autres illusions sont éphémères, dues à une sorte de condescendance de l'esprit, à un relâchement de l'attention, ou à une action spontanée de l'imagination ; pour les opposer aux précédentes, le même auteur les appelle *actives*. Les premières représentent des états acquis d'ancienne date, inscrits dans l'organisme en traits profonds ; les secondes sont les états récents, peu organisés et peu stables. Si l'on se rappelle que l'illusion des sens se forme par un acte psychique d'interprétation comparable à un raisonnement, on pourra conclure de ces faits que les raisonnements, indépendamment de leur vérité ou de leur fausseté, ont une autre qualité, qu'on pourrait appeler *l'intensité*, que deux démonstrations, également vraies ou fausses, peuvent être inégalement fortes, et que leur force relative, si elle était susceptible de mesure, pourrait être évaluée en fraction. Sans pousser plus loin cette théorie, nous nous bornons à constater que l'expérience directe par les sens ne peut produire le même effet sur toutes les illusions. Nous allons voir qu'on peut classer les illusions en trois groupes, suivant que la réduction de la représentation mentale par la sensation est complète, partielle ou nulle.

(1) Le premier groupe est représenté par les illusions qui, une fois détruites, ne parviennent pas à se recomposer ; la représentation fausse est chassée de telle sorte qu'elle ne reparaît plus dans la conscience ; le pouvoir de la sensation

atteint un maximum. C'est le cas des illusions actives en général. Nous pouvons prendre comme exemple les illusions qui se développent quand on s'égare dans un lieu inconnu ; après un petit nombre de détours, on perd toute notion exacte sur la direction des points cardinaux ; et on s'imagine qu'on se rapproche d'un lieu, au moment où l'on marche dans le sens opposé. Si l'individu rencontre un point de repère qui lui permette de s'orienter à nouveau, l'illusion est rectifiée et disparaît brusquement. Bien plus, la correction une fois faite, l'illusion devient une véritable impossibilité, qu'aucune effort d'esprit ne parvient à faire renaître.

Nous rapprocherons de cette illusion un autre phénomène qui paraît tenir aux mêmes causes : c'est une illusion qui repose sur une fausse appréciation des mouvements de la tête.[1] "On pratique dans le volet d'une chambre obscure une fente de 5 centimètres de long sur 2 de large, et formant le seul objet visible dans l'espace qui l'entoure. Quand, cette ligne éclairée étant verticale, l'observateur incline la tête vers l'épaule droite, la ligne paraît s'incliner en sens contraire, c'est à dire de gauche à droite et de haut en bas ; si l'observateur incline la tête vers l'épaule gauche, le mouvement apparent de la ligne change de sens ; il a toujours lieu en sens contraire du mouvement de la tête. . . . Lorsqu'on laisse pénétrer de la lumière dans la chambre en maintenant l'inclinaison de la tête, la ligne reprend sa position verticale." Il suffit de comparer cette illusion à la précédente pour voir jusqu'à quel point elles se ressemblent. Dans les deux cas il s'agit d'une fausse appréciation de la direction des objets ; dans les deux cas cette fausse appréciation dépend d'une fausse représentation des mouvements exécutés ; dans les deux cas, l'illusion est subordonnée à l'absence de points de repère visuels ; dans les deux cas enfin l'apparition d'un point de repère détruit brusquement l'illusion. (L'éclairement de la chambre obscure, dans la seconde expérience, ne permet d'apprécier la direction de la ligne lumineuse qu'en fournissant des points de repère.)

Helmholtz[2] attribue cette dernière illusion à une tendance que nous avons à considérer, dans l'obscurité, les inclinaisons latérales de la tête comme plus petites qu'elles ne sont en réalité. Nous pensons qu'on pourrait rattacher la première illusion à une cause analogue. Nous avons constaté expérimentalement que lorsqu'on change de direction, l'esprit à une tendance, lorsqu'il apprécie le changement sans le secours de la vue, à diminuer la valeur de l'angle de rotation. Ce serait là, selon nous, une particularité de la conscience musculaire. Néanmoins, les faits que nous avons recueillis ne sont pas encore assez nombreux pour nous permettre de conclure.

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[1] Cette illusion a été décrite pour la première fois par Aubert, *Virchow's Archiv für pathologische Anatomie und Physiologie*, xx.

[2] *Optique physiologique*, pp. 785 et 786.

L'illusion de direction permet de comprendre ce que c'est que le *vertige de direction.*[1] On a désigné par ce nom une sorte de saisissement à laquelle sont sujets des individus agés et affaiblis, et quelquefois même des chasseurs expérimentés. Sous l'influence d'une sorte d'accès, les individus sont convaincus qu'ils vont dans une direction absolument contraire à celle qu'ils suivent réellement, et la vue des points de repère que leurs compagnons leur montrent afin de faire cesser leur erreur ne peut vaincre ce sentiment pénible de renversement. Il semble que ce vertige est simplement une illusion de direction qui au lieu de ceder devant la preuve contraire persiste avec une force anormale. Il y a un nom pour les illusions de ce genre, on les appelle des hallucinations. Nous dirons donc que le vertige de direction est l'hallucination de la direction.

(2) Le deuxième groupe est le plus intéressant. Il contient les cas où l'illusion, quoique rectifiée, peut encore renaître quand on s'y prête en faisant un effort d'imagination, ou quand la sensation rectificatrice cesse de se faire sentir. Citons une dernière fois l'expérience d'Aristote. Nous sommes absolument incapables de nous représenter deux boules quand l'œil est ouvert et fixé sur la boule unique : mais dès que les yeux se ferment, les deux boules réapparaissent. En ouvrant et fermant alternativement les yeux, on peut se donner le spectacle d'une illusion alternativement détruite et renaissante.

Après avoir perdu un membre, les opérés ressentent des douleurs qu'ils rapportent à l'extrémité du membre absent, et ils sont obligés de constater avec la vue et avec la main que leur membre n'existe plus pour se débarrasser de cette illusion des sens. Mais la fausse localisation recommence souvent pendant la nuit ; ce n'est que peu à peu que le malade s'habitue à sa situation nouvelle. Fait curieux, à mesure que le temps s'écoule, la *sensation remonte ;* " elle est rapportée d'abord à un point moins éloigné, et finit en quelque sorte par s'appliquer sur l'extrémité des moignons ".[2] Il y a là comme une sorte de compromis entre l'illusion et la rectification.[1] Beaucoup d'autres exemples pourraient être cités. Mais ceux que nous avons choisis suffisent pour faire comprendre la survivance de certaines illusions des sens. A quoi tient ce phénomène ? Sans doute à ce fait général que les éléments nerveux, après avoir agi d'une certaine manière, ont une tendance à reproduire la même action avec plus de facilité. Rappelons, à ce propos, des vérités banales : un raisonnement faux, une hypothèse absurde, un soupçon insensé ne sont pas absolument effacés et détruits par cela seul que l'esprit les a jugés à leur véritable valeur. Calomniez, a-t-on dit, il en reste toujours quelque chose.

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[1] *Nature*, 17 avril, 1873, article de M. Henry Forde ; et *Revue Philosophique*, juillet, 1882, article de M. Viguier.

[2] Ball, *Revue Scientifique*, 1er mai, 1880.

(3) Dans le troisième groupe nous rangerons les illusions qui persistent à s'imposer après que l'esprit en a pénétré la cause. Ces illusions ont leur origine dans des habitudes acquises ; on pourrait les appeler normales, car elles sont partagées par tous les individus placés dans certaines circonstances. Telles sont les illusions d'optique dues aux phénomènes de réflexion, de réfraction et de diffraction, à la persistance ou à l'irradiation des images sur la rétine etc., les illusions de l'ouie causées par la réflexion du son (erreur de localisation, écho), etc., etc.

M. Sully a fait une étude soigneuse de ces illusions, qu'il qualifie de *passives*, pour les opposer aux illusions *actives* naissant du jeu spontané de l'imagination. Dans les illusions passives l'esprit se laisse guider et dominer par la routine de ses habitudes ; il interprète la sensation conformément au cours ordinaire de son expérience, sans tenir compte des circonstances exceptionnelles ou il se trouve. On pourrait définir, dit M. Sully,[2] le caractère logique de l'illusion passive en disant qu'elle ressemble à ce paralogisme qui tient à ce qu'on raisonne sur une généralisation approximative comme si c'était une vérité universelle.

Il ne semble pas que l'action directe des sens puisse détruire ces illusions. Le bâton à demi plongé dans l'eau continue à paraître brisé au point d'immersion, quoique le toucher témoigne qu'il est droit. L'apparence du bâton courbé n'est cependant qu'une représentation de l'esprit, et non, comme on pourrait le croire, une impression des sens ;

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[1] Topffer, dans les *Nouvelles genevoises* (p. 396), décrit avec beaucoup d'agrément un fait du même genre. "N'eûtes-vous jamais peur . . . le soir en vous couchant, lorsqu'un genou sur le lit, vous n'osiez retirer le pied, crainte que, de dessous, une main ? . . . Prenez la lumière, regardez bien : rien, personne. Posez la lumière, ne regardez plus : il y est de nouveau."

[2] *Illusions*, p. 242.

car bien que les rayons lumineux émis par l'objet fassent réellement un angle susceptible d'être projeté sur un plan, l'œil ne voit pas directement cet angle, il l'infére ; et cette inférence vient de ce que l'esprit se laisse ici guider par cette vérité générale et non absolue que tout point lumineux est situé dans la direction des dernières ondes qui parviennent à l'œil. En d'autres termes, et sans entrer dans les détails, l'esprit qui voit le bâton courbé interpréte certaines impressions visuelles qui sont le signe exact d'une courbure lorsque l'objet est situé tout entier dans un milieu homogène. Cette illusion remarquable ne céde pas à l'expérience du toucher qui la contredit.

On a voulu tirer de cette persistance de certaines illusions un argument en faveur de la théorie nativistique, d'après laquelle un grand nombre de particularités de nos perceptions—et notamment la perception de l'espace, la localisation des points lumineux dans le champ visuel etc.—auraient lieu par un mécanisme inné, antérieur à toute expérience, et lié fatalement à une disposition anatomique. Nous ne voulons pas traiter à fond une question qui se présente ici de biais. Notons seulement qu'il paraît aujourd'hui de plus en plus probable que l'habitude, l'éducation des sens, en un mot les opérations de l'esprit suffisent à expliquer la plupart des phénomènes, et que la théorie empiristique soutenue par Helmholtz gagne tous les jours du terrain.[1]

Et, de fait, ne voyons nous pas que pour peu qu'on s'y exerce, on parvient à triompher de quelques unes de ces illusions dites persistantes ? N'avons-nous pas constaté (voir plus haut) qu'on peut s'habituer à localiser exactement les objets en les regardant à travers un prisme, et tenir compte de la déviation subie par les rayons lumineux ? L'acquisition de cette perception ne fait-elle pas brêche à cette regle posée par Rouget[2] que les impressions visuelles sont reportées au dehors de la rétine dans la direction des axes prolongés des batonnets ? Et n'en peut-on pas conclure que la règle de Rouget ne dépend pas d'une faculté innée de la rétine, puisque l'expérience peut la détruire ? Ne voit-on pas les strabiques fusionner des images qui ne tombent pas sur des points identiques des deux rétines, etc. etc. ? Il est probable que l'expérience a tout formé, et qu'une expérience contraire et suffisamment prolongée pourrait tout détruire.

Quoi qu'il en soit de ces problèmes, on peut dire des illusions passives que si l'expérience directe ne les détruit pas, l'esprit les corrige. En somme, c'est ce qui importe le plus. Il en est de ces erreurs des sens comme de quelques hallucinations auxquelles les malades ne peuvent pas se soustraire, mais dont ils reconnaissent la fausseté. La rectification n'est que partielle : elle laisse subsister intacte l'image sensible, mais cette image cesse de paraître objet réel et n'entraîne plus la croyance. La rectification a lieu, comme dit M. Taine,[1] au *second stade.*

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[1] *Physiol. opt.* Voyez toute la troisième partie, pour l'historique complet de la question, et la discussion de toutes les opinions.

[2] Voir Duval, *Structure et usage de la Rétine*, p. 107, en note, Paris, 1873.

Il nous reste à déterminer en quelques mots le caractère logique de la négation que le témoignage des sens oppose, dans les conditions que nous venons d'étudier, à une opération de la pensée. Les faits précédents ont l'avantage de traduire sous une forme expérimentale un principe abstrait qui a tenu une place considérable dans la philosophie antique, et qui reste aujourd'hui sinon le criterium de la vérité, du moins la condition du possible : le principe de contradiction. On peut l'énoncer de plusieurs manières. C'est une loi de notre intelligence,[2] dirons nous dans notre langage moderne et à notre point de vue psychologique, que certains états de conscience s'excluent. Nous ne pouvons conçevoir une ligne comme étant à la fois droite et brisée, une surface comme étant à la fois carrée et triangulaire, un corps comme étant à la fois lourd et léger : ces termes impliquent contradiction. Or c'est bien ce même principe de contradiction qui est en jeu lorsqu'une représentation mentale est corrigée par l'intervention de la sensation. S'il y a conflit entre ces deux états de conscience, c'est parcequ'ils ne peuvent pas coexister, parcequ'ils s'excluent, en un mot parcequ'ils se contredisent. Le principe de contradiction pourrait s'appeler le principe d'antagonisme des états de conscience.

Quelles sont les conditions necessaires pour que deux états forment deux notions contradictoires ? Il y en a trois : c'est que les deux états se rapportent au même objet, qu'ils appartiennent au même organe sensoriel, et qu'ils ne soient pas semblables. Ces trois conditions sont nécessaires et suffisantes.

IV.

Il est temps de procéder à la synthèse des faits qui viennent d'être analysés.

Le principe général qui domine notre matière, c'est que toute opération de l'esprit a pour but l'action. La perception vraie et la perception fausse ne sont que les premières parties d'un phénomène qui, considéré dans son intégralité, est un processus d'adaptation. Ainsi comprise, la perception (vraie ou fausse) laisse facilement voir sa parenté avec le réflexe; c'est un réflexe modifié et compliqué, dont le développement a eu lieu dans les deux sens à la fois. D'abord, dans le sens psychique (période centripète du réflexe) : le stimulus n'est pas une impression sensorielle, mais une représentation mentale qu'une impression sensorielle a provoquée. Ensuite, dans le sens moteur (période centrifuge du réflexe) : la réaction ne se compose pas d'un simple mouvement responsif, suffisant au cas où le stimulus agit directement sur le corps; elle est formée d'une série de mouvements coordonnés en vue d'une fin, et adaptant l'organisme vis à vis d'un objet qui peut être éloigné dans l'espace et dans le temps.

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[1] Taine, *De l'Intelligence*, t. i., p. 76, *et seq.*

[2] Taine, *De l'Intelligence*, t. i., p. 36.

Le réflexe représente une adaptation simple et bornée; la perception, une adaptation plus complexe et plus générale.

Chez un grand nombre d'animaux, ces processus d'adaptation paraissent exister seuls et suffire à l'entretien de la vie de relation. Comme l'animal se meut toujours dans le même cercle et accomplit régulièrement les mêmes actes à la suite des mêmes incitations, il arrive facilement à faire bien un travail qui ne varie pas. On cite par exemple des insectes qui ne visitent jamais qu'une seule espèce de fleurs.[1] Dans ces conditions, l'adaptation atteint une perfection merveilleuse, qui a fait croire à la supériorité de l'instinct sur l'intelligence.[2]

Mais à mesure que le champ de la perception s'agrandit, que les facultés se développent et que l'adaptation, au lieu d'être uniforme, est obligée de se modifier sans cesse et de varier avec les conditions extérieures, les chances d'erreurs deviennent plus nombreuses. L'intelligence devient fragile par sa supériorité même. L'illusion est une cause de danger soit immediat soit prochain, car le défaut d'adaptation dans l'ordre des connaissances entraîne presque toujours un défaut d'adaptation dans l'ordre de l'action. Il faut donc, de toute nécessité, que l'individu ait les moyens de reconnaître et de corriger ses erreurs, comme un organisme sain qui répare lui-même ses désordres et ses lésions. C'est à ce but que concourrent, chez l'homme et chez les principaux animaux supérieurs, un ensemble de fonctions complexes qui dirigent et contrôlent les processus automatiques de la perception.

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[1] Lubbock, *Insectes et Fleurs*, p. 24.

[2] Nous n'insistons pas, n'ayant pas l'intention de faire ici de la psychologie animale; mais nous devons rappeler que les réflexions précédentes s'appuient sur un très grand nombre de faits.

Les fonctions inférieures avaient toutes la forme impulsive, et conduisaient uniquement à l'action ; les fonctions directrices sont surtout des pouvoirs d'arrêt.

Nous avons étudié seulement les pièces les plus inférieures et les plus grossières de cet appareil de perfectionnement : la correction des illusions par l'appel aux sens. Essayons de montrer en quelques mots que cette correction constitue, par rapport à la perception, un état supérieur dans la hiérarchie des activités psychiques.

La suspension du processus psycho-moteur par l'appel aux sens est sans doute un phénomène assez simple, car l'action d'arrêt est produite par une incitation venue du dehors et non du dedans. La seule condition requise à cet effet, c'est que le processus qui doit être suspendu ne se dépense pas immédiatement au dehors en mouvement. La première condition de l'arrêt, c'est donc une question de temps. C'est dire que chez tous les individus dont les idées et les sentiments passent immédiatement à l'acte, comme les enfants, les sauvages, les personnes inéduquées et inéducables, l'arrêt est impossible.

De plus, le contrôle d'un sens par un autre, quand il n'est pas le fait du hasard, suppose que l'individu doute des apparences et cherche à vérifier si ce doute est fondé. Il y a là comme un rudiment de curiosité scientifique. L'opération de contrôle, prise en elle-même, est une véritable expérimentation.

Tous les moyens que l'esprit possède de corriger les illusions sont, nous le répétons, des appareils de perfectionnement surajoutés ; ce sont les derniers qui apparaissent dans le développement phylogenique, comme dans le développement ontogénique ; ce sont les plus complexes, les plus délicats, les plus fragiles de tous. Conséquemment, ce sont ceux que la maladie frappe les premiers. Eux détruits, la perception perd son appareil régulateur, et l'illusion des sens se transforme en *hallucination.*

IV.—THE PHILOSOPHY OF CHANCE.

By F. Y. EDGEWORTH.

THE first principles of the Calculus of Probabilities, the metaphysical roots rather than the mathematical branches of the science, are what I attempt here to examine.

Underlying the whole subject, but at a philosophical depth below the reach of the present inquiry, is the definition of probability. Probability may be described, agreeably to general usage, as importing partial incomplete belief. Whatever belief is—whether according to the doctrine of Hume, which has been much repeated but little improved, " belief is nothing but a more vivid, lively, forcible, firm, steady conception of an object than what the imagination alone is ever able to attain," related to mere imagination as the "idea of an enchanted castle" to actual sensations; or whether, according to Professor Bain's doctrine, belief is something more or something different, being of the nature of volition, " preparedness to act,"—whether these things are so or whether not, and whatever the physiological processes accompanying the phenomenon of consciousness, probability may be described, with sufficient accuracy for the present purpose, as differing somehow in degree from perfect belief or rather credibility. The Calculus of Probabilities is concerned with the estimation of degrees of probability; not every species of estimate, but that which is founded on a particular standard. That standard is the phenomenon of statistical uniformity: the fact that a genus can very frequently be subdivided into species such that the number of individuals in each species bears an approximately constant ratio to the number of individuals in the genus.[1] Thus the object of the calculus is probability as estimated by statistical uniformity: the partial belief about some unknown occurrence, as the throw of a die, *together with* the observed fact, or full belief, that any one face is thrown about as often as another. The foundation is regarded as an integral part of the whole structure; and indeed it is the most solid part. The indispensability of this objective foundation has been established by Mr. Venn;[2] with whom on this and all other controverted points the present writer in the main agrees, while yet attempting to show that Mr. Venn's logical scepticism has often carried him too far from the position held by the majority of previous writers upon Chance. Thus he seems to go too far when he insists that quantity of belief is a "mere appendage" of the science. That Probability should be concerned only with certainty is surely a little paradoxical, and challenges inquiry.

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[1] *Cf.* Cournot *Théorie des Chances*, and Ellis, *Camb. Phil. Trans.*, viii.

[2] *Cf.* Ellis, *Camb. Phil. Trans*, iii., and Mr. Venn's more full exposition, *Logic of Chance*, ch. 3.

Our first question then is: How far are gradations of belief a subject of science? Mr. Venn's negative criticism has great force; but it does not seem to hit, perhaps it was not aimed at, the moderate position here taken. Gradations of belief, it is submitted, can be discerned with some precision in simple cases, such as those which the mathematicians posit. Suppose there is an urn containing a hundred balls, black and white. The felt probability, the quantity of belief, that a white ball will be obtained at a single drawing continually increases, as we increase, other things being constant, the proportion of white to black balls. This measurement of a subjective feeling is like the measurement of felt heat by the thermometer. It is very like the Fechnerian measurements of sensation. Like the Fechnerian measurements it is directly applicable only to simple cases; and yet, as Fechner's law has some analogical bearing upon the higher problem of Hedonics, and seems to be the basis of the law of diminishing utility, so belief about the simple events of games of chance has fruitful analogy with belief about the more complicated events of real life. It must be frankly admitted, however, that the practical outcome of this subjective view is slight; that little can be worked by it which cannot be worked without it. There is only one class of practical problems to which the subjective view is exclusively applicable; those actions which cannot be regarded as forming part of a 'series' in Mr. Venn's sense; a class which with the increase of providence and sympathy is likely to disappear. The principal arguments adduced by Mr. Venn in his *Logic of Chance*, ch. 5, against 'gradations of belief' must now be passed in review.

(1) He doubts "that our belief of every proposition is a thing which we can be strictly said to measure". The answer is suggested by Mr. Venn when he supposes "that it were possible to strike a sort of average" of a fluctuating belief. Doubtless our feeling of quantity of belief is, even in the simpler cases, a somewhat vague presentation, like our feeling of quantity of time when, without having looked at the clock for some time, we try to think what o'clock it is.

In the more complicated beliefs not even this degree of precision is possible; however, even in such cases there may well be important quantitative, although not numerical, estimates.

(2) Mr. Venn next objects—"Should we find this average to be of the amount assigned by theory"? The answer is, as before, supplied by the doctrine of averages. The required conformity between our experienced feeling and the theoretic rule holds on an average. Mr. Venn tells us of the undue confidence of the gambler. But is there no such thing as undue diffidence? or may not the over-confidence of one party be balanced by that of another? Peter and Paul betting against each other about an event, the chance of which is really even, are each ready to give odds. Upon an average their opposite errors counterbalance each other.

(3) But, continues Mr. Venn, even supposing that quantification of belief is, and is according to standard scale, what security have we that it is as it ought to be? The instinctive is not always right. Resentment is an instinctive principle; yet it is right to subdue it. It may be replied that the comparison should be, not with resentment, but with those superior principles, as Butler calls them, rational self-love or benevolence, in virtue of which resentment is subdued. These principles, as Mill and others have observed, do not admit of proof in the ordinary sense. Somehow or other we make up our mind what canon of conduct to adopt. The first principle of belief is similarly self-balanced, and rests upon nothing. Accordingly, the position that belief *ought* not always to be what it is, or tends to be *normally*, if I may say so, finds its ethical analogue, not in the suppression of a secondary principle like resentment, but (as on the intellectual side we have to deal with no such hierarchy of principles) with that *self-limitation* of a supreme principle which has been so well illustrated by Butler and Mr. Sidgwick. And no doubt the self-limitation of belief in the interest of truth is conceivable, and has been defended. A certain degree of superstition is favourable to the imagination; a certain power of imagination is necessary to the perception of higher truth. Still this method of drugging the intellectual nature must be employed with great caution. Truth in the inward parts should be the rule; the "lie within the soul," the doubtful and dangerous exception.

(4) Again Mr. Venn objects that the selection of statistically measured belief, out of all other cases of belief, is arbitrary. The answer is that other important sciences are arbitrarily defined. Political economy is an arbitrarily selected

fragment of the Calculus of Hedonics; an ill-defined tract of speculation irregularly grouped about a central spot, the theory of exchange, which is distinguished from the general phenomena of human life by the same attribute as the statistically measured belief, namely a certain quasi-mathematical precision.

(5) Whereas, it is said, full belief about an event is either verified or disproved by the event, fractional belief can only be justified or disproved by a series of events. There is a sort of Greek subtlety about this ἀπορία, by which I must confess myself baffled. I may observe, perhaps, that in cases of very high probability the correctness of the fraction may *very nearly* be disproved by even a single event; that in order to verify the fraction there is perhaps required, not a whole series, but only as many terms as there are units in the denomination of the fraction. If the fraction is two-thirds, and if out of three trials the event occurs twice, may we say that the fraction is, not indeed proved, but in some sense verified?

(6) It is finally objected that the phenomenon of a fraction being assigned to belief may be accounted for otherwise than on the supposition that the quantity of belief is measurable. The fraction is the measure of the quantity of advantage which Laplace calls *espérance*. Thus if p be the fraction which expresses the probability of an event, each occurrence of which brings me £1, and N the (large) number of trials to be made, then £pN is the value of my expectation. There is no doubt a large portion of truth in this explanation. Still it may be observed that, upon theories which are current that belief is of the nature of volition and that all volition is determined by the prospect of pleasure, the explanation propounded does not so much destroy as fulfil the theory that the fraction in question is the measure of quantity of belief. If belief cannot be identified with volition, then indeed those who dissent from Mr. Venn will have to postulate a sort of pre-established harmony between the distinct processes of volition and intellect. Yet this postulate cannot be regarded as very extravagant, considering the admitted interdependence of the different departments of mind, which, as Aristotle says of his ἐνέργεια and ἡδόνη, "seem to be joined together and not to admit of separation." To resolve such distinctions exceeds the range of the present observer's metaphysical microscope. I seem to see that gradations of belief are more capable of precision than some of Mr. Venn's arguments admit. Yet I cannot refuse assent to his summing up. "The

different amounts of belief which we entertain upon different events, and which are recognised by various phrases in common use, have undoubtedly some meaning; but the greater part of their meaning, and certainly their only justification, are to be sought in the *series* of corresponding events to which they belong; in regard to which it may be shown that far more events are capable of being referred to a series than might be supposed at first sight." In short, the author commands approbation as a judge, though as an advocate he may be needlessly polemical; his conclusion seems correct, though his arguments prove too much.

So far we have been concerned with the simplest type of probability; the fact of a simple and perfect statistical uniformity, such as occurs in games of chance, together with the partial belief accompanying that known fact. We have looked at the outside, and we have endeavoured to peer into the inside, of the simple unit-cell, by the multiplication of which the science of pure probabilities is built up. If this were a mathematical treatise, it would be proper in the next place to consider those compound structures, ascending through the first seven principles of Laplace. But the complexities thus presented would be of a merely mathematical character; for, as Mr. Venn points out, inverse probability, *quâ* inverse, does not differ essentially from the simple species; a philosophical distinction arises, when the purity of the type above delineated becomes mixed with the imperfections of real existence. Suppose, for instance, the regularity of our die has not been fully established by actual experience; that we have only some reason to believe that it is not weighted, or only perhaps no reason to believe that it is weighted more upon one side than another. In contemplating this case let us endeavour to keep separate what may be called the outside view presented by the consideration of what Mr. Venn calls a 'series,' and the inside or subjective aspect of partial belief about the result of any particular throw.

The more objective view does not at first sight present any particular difficulty, any other difficulty than is presented by all applications of mathematical conceptions to real existence. In such applications there is ever, as Mill has well pointed out, some admixture of assumption and hypothesis. Even geometrical axioms must be taken *cum grano*. The fine remark of Burke, that the lines of morality are broad as well as long, is true also in some degree of physical lines. Constants ascertained only to a certain number of decimal places are employed. Nay, we must sometimes be content with a mere guess as to the value of a constant; for instance, the *weight* to be assigned to an observation. Functions evaluated only to the third or fourth term of development are employed. Nay we may reason about functions without knowing even approximately their form. I have elsewhere attempted to illustrate this characteristic of mathematical reasoning,—superfluously indeed, for, as a reviewer observes, the person who supposes that the higher mathematics are but a complicated sort of double rule of three is not worth arguing with.

So far then as the imperfections of our reasonings are of the kind that is familiar in mathematical physics, no particular apology is required. Even Mr. Venn, while he points out the imperfection of our statistical data, yet allows a reasonable license in treating them as if they were perfect. Even that precisian, M. Block, for whom 'point de nombres point de statistique,' is obliged to admit a certain element of approximation. Nor is there any particular difficulty in extending the statistical method to unnumerical quantities, as Professor Jevons has pointed out.[1] There is no difficulty about handling those constants which, as Boole and Donkin point out, are generally introduced by problems in inverse probability; provided that we have some quantitative datum about the constant, as that it is not very great or not very small. This is admirably shown by Donkin in his profound essays on Probability in the *Philosophical Magazine*, 1850-1. Donkin puts the problem: A person who understands the game of chess sees a certain number of pieces placed in a particular situation. "What is to him the probability that the situation was actually produced by a game?" This inverse problem introduces the *à priori* probability that a game would be played, and other constants. If we know *something* about the ways of the house, we may know that this probability is not *very small*, and thus from the mathematical formula deduce a substantial though not a numerical conclusion. Similarly the much decried method of Bayes may be employed to deduce from the frequently experienced occurrence of a phenomenon the large probability of its recurrence. There is not required a precise *à priori* knowledge, as of variously constituted bags of balls, which Mr. Venn postulates (ch. 5). Almost any *à priori* knowledge, as Cournot[2] has well shown, is sufficient to deduce an overwhelmingly large, though not of course a numerically-measured, probability. And similarly in applying the Calculus of Probabilities, as the most distinguished astronomers have done, to the question whether the distribution of the fixed stars can be regarded as the result of a random sprinkling, do we not know *something* about the involved constant, the *à priori* probability that such a chance-distribution should have taken place? Have we not experienced that chance does not certainly rule among the celestial phenomena, that the constants expressing *à priori* probability are not equal to unity, in the case of similar arguments which have been confirmed by fact, for instance, the argument which the Calculus of Probabilities has drawn from the apparent motion of all the fixed stars round the earth in favour of the earth's revolution, and other examples adduced by Professor Jevons in the *Principles of Science?*

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[1] *Report of the British Association*, 1870.

[2] *Théorie des Chances*, § 95, p. 169.

Or, in leaving terrestrial phenomena, are we leaving the solid ground of experience? In treating celestial constants as equally likely to have one value as another, are we entering on a region peculiar to probability and not governed by the general analogy of mathematical physics? As long as we have some approximate data, that hypothetical reasoning should be based upon imperfect data is agreeable to the experience of mathematical physics. But what is peculiar and paradoxical in probabilities is that our reasoning appears to become more accurate as our ignorance becomes complete; that when we have embarked upon chaos we seem to drop down into a cosmos. Just when probability, founded upon statistical fact, material probability, as Boole calls it,[1] has reached the utmost degree of tenuity, we fall back upon intellectual probability. Such a turning-point we seem now to have reached in the progress of our illustrations from the more to the less accurate data.

I submit that the 'intellectual' probability is not essentially different from the 'material,' but only consists, so to speak, of a more diffused sort of matter; that the change which is made is not from experience into dreamland, but from a particular to a more general sort of experience. The case is paralleled, perhaps, and explained by a familiar and all-pervading arithmetical experience. Suppose we are evaluating a decimal. If we know nothing at all about the forthcoming 'place' or digit, then one digit is as likely to occur as another. The ground of this belief is a very wide experience, perhaps, of the unconscious and even ante-natal species, which some prefer to call intuitive knowledge. At any rate the belief is supported by actual experience, the rough experience of anyone who has ever worked sums in arithmetic, the precise experience of Mr. Proctor, who actually counted the digits occurring in the pages of a logarithm table. This *à priori* knowledge about the forthcoming digit is perfectly real and substantial; yet it does not count for much when weighed against special knowledge that the digit in question is in a certain neighbourhood. Suppose, for instance, that a constant is being evaluated, and that special knowledge about a forthcoming place is afforded by actual observation: for instance, that ·6 has been very often observed, ·7 and ·5 not so often, and the rest very rarely. It would be quite correct, I think, according to the method of Bayes, to treat the *à priori* probability of each digit as 1-10th, the *à posteriori* probability of say 0 or 9 as indefinitely small. Similarly, I submit, the assumption that any probability-constant about which we know nothing in particular is as likely to have one value as another is grounded upon the rough but solid experience that such constants do, as a matter of fact, as often have one value as another. And accordingly such constants afford a basis for that inverse method which is so beautifully illustrated by Donkin in the article referred to.

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[1] *Edinb. Roy. Soc. Proc.*, xx.

The ridicule which has been heaped upon Bayes's theorem and the inverse method will be found only applicable to the pretence, here deprecated, of eliciting knowledge out of ignorance, something out of nothing. The most formidable objection is that which was made by Boole, and is repeated by Mr. Venn,[1] Mr. Peirce,[2] and others with approbation. Our procedure in treating one value as *à priori* not less likely than another is, it is said, of a quite arbitrary character, and apt to lead to different conclusions from the plausible one which we have reached by accident. I will not transcribe the argument of Boole,[3] but will attempt to parody it. Suppose we are considering the probable value of a forthcoming decimal place in the evaluation of some constant. Now this *à priori* probability may be considered as thus given. Suppose there are ten urns, A, B, . . . J. A *constitution* of the system consists in a particular combination of the emptiness of some urns with the fulness of others, *e.g.*, $\bar{A}B\bar{C}DEF\bar{G}HIJ$ is a particular constitution, where the superposed negative sign denotes emptiness. Now the forthcoming digit corresponds to the number of full urns

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[1] *Logic of Chance*, ch. 6, § 13.

[2] *Studies in Logic.*

[3] *Laws of Thought*, 370.

(whatever their letters) in the above example, 7. The chance of an urn being full or empty is even. Therefore we see by reasoning familiar to students of the *Law of Errors*, that the chance of 9 or 0 is very small; and if the number of the urns were infinite, would be infinitesimal; which is absurd. The answer of course is, that you have no right to frame an hypothesis which is at variance with the experienced fact that one digit does turn up as often as another. "It is making a very unexpected tour," as Hume says of the vagaries of hypothesis, from a supposition erected upon facts to reason down to the negation of the facts. But we do not want to leave the facts at all. We take our stand upon the fact that probability-constants occurring in nature present every variety of fractional value; and that natural constants in general are found to show no preference for one number rather than another. Acting upon which supposition, while in particular cases we shall err, in the long run we shall find our account.

The view here propounded, that the so-called intellectual probability is not essentially different from the probability which is founded upon special statistics, must now be tested by a few examples.

(1) The most important instance is that afforded by the Art of Measurement, which postulates that the *à priori* probability of one value being correct is as great as that of another; that, as a matter of fact, measurables do in general as often have one value as another. Take the simplest case, that of an instrument of which the errors are known to arrange themselves according to a certain *law of error*. Given a set of observations, we have to calculate from what point (or value) as centre the given observations are most likely to have diverged. The calculation presupposes that the *à priori* probability of one value is the same as that of another. That essential fact underlies both the common-sense practice of taking an average, and the most refined methods of the Theory of Observations.

(2) Let us take next an example put by Mill. It is known that a box or urn contains a hundred balls of two different colours, white and black, ninety-nine of one colour, and one of the other; but which colour is in the majority is absolutely unknown. The probability of drawing a white ball is $\frac{1}{2}$. I believe that the numerical value is justified by the fact that in a great number of experiences with urns one colour would as often be in the majority as another. And this, whatever the origin of our doubt as to the constitution of the urns; whether we knew that the urn before us was

the result of a random selection, or whether we, or our informant, had once known, but completely forgotten, which was the preponderating colour. For in the latter case the constitution of our urn falls into the category of things which are experienced to happen just as often one way as another. As Ellis says,[1] "When we expect two events equally, we believe that they will recur equally in the long run".

This position appears to be intermediate between that of Mill[2] and Mr. Venn; agreeing with Mr. Venn that for the significant employment of the Calculus of Probabilities, objective data are requisite; but disagreeing from Mr. Venn's assertion that in most cases of inverse probability such data are not forthcoming.

(3) The following is given by Boole[3] as the typical instance of 'intellectual' probability. The material probability of one event is x, of another is y. Of their concurrence nothing is known experientially. Then the intellectual probability of the double event is xy; though of course, as a matter of fact, the statistical frequency of the double event may turn out to be different. In so far as the assigned value, xy, has any real value, I think it must be grounded on the experience that, in the long run, consisting of events in general occurrence, events are found to be independent of one another; or that the connexions between events tending to increase the probability of the double event above xy are just balanced by the repugnancies tending to depress the true value below xy. Referring to our typical instance of arithmetical experience, let us consider the probability of two forthcoming decimal places (about which nothing is known) being, say, 73. In virtue of the general experience that these different figures of natural constants have no discernible connexion distinguishing them on inspection from a chance aggregation of digits, it would be safe to say, I think, that the *à priori* probability of 73 is 1-100th; and I shall be prepared to find that about one in a hundred logarithms had, say, its sixth and seventh places respectively 7 and 3. And, if we take into account the second consideration above specified as a ground for the value of xy, it would not, I think, affect the value as long as we range over the wider experiences, such as that of number; though no doubt there may be particular departments of phenomena which may be com-

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[1] *Camb. Phil. Trans.*, viii.

[2] *Logic*, bk. iii., ch. 18, § 1.

[3] *Edinburgh Roy. Soc. Proc.*

pared to persons whose appearances on any scene may be regarded as in general independent, but who, in so far as they do influence each other's movements, exercise only an attractive influence. x and y then being the respective statistical probability of appearance for two persons, the probability of their meeting would not be xy, but rather $xy + c$.

(4) The preceding instance belongs to, and may fitly introduce Boole's method of probabilities, the peculiar feature of which is that it deals with probabilities which are not determined by statistics. What is to be said of these mysteriously evolved probabilities? I do not feel able to say with Jevons that they are the most probable probabilities consistent with the data. I only see that they are consistent with the data, and that there is some analogy, I know not of what weight, between the method of attaining these values by the logical calculus and the procedure in the simple case just considered of xy, which does seem to rest upon actual experience. I should not be surprised if others more quick-sighted were able to intuit the connexion of the Boolian solutions with actual experience; to ground them "upon reasonableness of hypothesis viewed in the light of that general analogy of nature which experience tends daily to confirm" (Donkin).

At any rate the values in question are possible values consistent with the data, as Boole has shown by a most remarkable mathematical investigation,[1] which certainly seems to remove his calculus from the sphere of mere guesswork. Accordingly the Boolian calculus may subserve what is probably the principal use of 'intellectual' probabilities: namely, to afford an hypothesis which may serve as a starting point for further observation. This is a use more important than the only *rôle* which Cournot will allow to subjective probability, as he calls it: namely, to regulate the conditions of a bet.

At the risk of appearing visionary, I will suggest another possible *rôle*. I have elsewhere argued that, as the *régime* of contract becomes predominant, there will arise a wide-spread need for a principle of adjustment between self-interested contractors, whether in commerce or in politics;[2] and that the required basis can be no other than the utility of all concerned. Well, then, in the absence of definite calculations of utility, it may be found necessary often to fall back upon those analogies confirmed by general experience which constitute intellectual probability. And in fact something of this sort appears to be unconsciously performed by the utilitarian who thinks it 'fair' to treat as equals those between whom no material difference is discerned. As Jevons says, with direct reference to the external world, but with that deep undertone of harmony with the things of soul which pervades his chapters upon Probability and Measurement, we must treat as equals things which are not known to be unequal.

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[1] *Transactions of the Royal Society*, 1862.

[2] *Mathematical Psychics*, p. 55.

The preceding examples, especially the first, may show that the assumptions connected with 'Inverse Probability,' far from being arbitrary, constitute a very good working hypothesis. They suggest that the particular species of inverse probability called the 'Rule of Succession' may not be so inane as Mr. Venn would have us believe. Admitting that the metaphor of nature's urn [1] does not much aid us in the work of Induction, may we not still say with Sir John Herschel, "It is never without its instruction to trace this sort of parallel between mental impressions and abstract numerical relations"? [2] Consider a chemical law which may be established by two or three careful experiments. To say that our certitude is here measured by 3-4ths or 4-5ths would be absurd. But the ground of our belief is not simply the two or three occurrences. There is the substratum established by a wide experience, that what has held good in two or three such chemical experiments will hold good generally. The case is not like drawing balls out of a jar about the constitution of which we know nothing but that one constitution is as likely as another; but rather like drawing a little jar out of a big jar, the constitution of which big jar is such that the contained jars contain each balls of one colour. When, then, we have ascertained the colour of any little jar, we know that all the future drawings from that jar will present the same colour. But how did we ascertain the character of the big jar's contents? By a simple induction to which the idea of sortition may not be irrelevant. The fact that upon so many trials there occurred no instance contradicting the generalisation in question does seem analogous to the continual drawing of balls of the same colour from an urn of whose contents before the drawing we were completely ignorant. The mathematical conceptions of the Rule of Succession do appear applicable to the inductions of simple enumeration; in particular to those *axiomata media*, as they may be called, with reference to the law of causation on the one hand and particular laws on the other—such as the constancy of chemical laws, the constancy of anatomical forms, the inconstancy of certain psychical phenomena—which contribute important, though unnoticed,[1] foundations to the fabric of inductive logic. I would not undertake to indicate the exact points at which the sustaining forces are applied to that substructure, which, in Mr. Venn's words, "is not so much to be compared to the solid foundations of an ordinary building as to the piles of the houses of Rotterdam, which rest somehow in a deep bed of soft mud". I only submit that the Rule of Succession may constitute, if not one of the piles, at least an important cross-beam, in that mysterious structure.

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[1] *Cf.* Jevons's *Principles of Science*, ch. 11, end.

[2] "On an Application of the Rule of Succession," *Edinburgh Review*, 1850.

Having now found that indeterminate probabilities, considered as statements of statistical fact, are respectably grounded upon experience, let us look at the subjective side which, on entering this department of the science, we agreed to postpone. Let us examine the paradox that there should be an accurate measure of 'quantity of belief'—as claimed by some for the constants of inverse probability in the absence of accurate statistics. The paradox disappears in our view that the precise quantity of belief does rest upon precise experience, such as that one digit occurs as often as another in nature. Where this conception of an exact, however general, experience is inappropriate, there the precise measurement of quantity of belief is impossible. The consideration of quantity of belief does not present any peculiar difficulty in the case of imperfect statistics—any difficulty essentially different from those which we have already discussed, with special reference to the case of perfectly determinate statistical data. The relation between the fact of statistics and the feeling of belief is not much more obscure because the things related are not precisely measurable.

So far as to the pure science of Probabilities. I have elsewhere[2] attempted to treat of the mixed science of Probability and Utility: of what Laplace calls *espérance*, the product of probability upon utility; that quantity which to maximise is the main problem of the Art of Measurement—of the art proper, which is described by its founder as the most *advantageous* method of combining observations, and of μετρητικὴ in a wider sense.

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[1] There are some excellent remarks on the concatenation of our different beliefs in Cournot, *Théorie des Chances*, p. 229.

[2] *Philosophical Magazine*, for November, 1883, and February, 1884.

V.—GIORDANO BRUNO.

By Thomas Whittaker.

The interest excited by the personality of Giordano Bruno must always have prevented his name from being quite forgotten. But for two centuries after his death his writings were very little known. It was not until 1830 that the Italian works were collected, and no complete edition of the Latin works exists even now. Within the present century, however, not only have the events of Bruno's life formed the subject of more than one investigation, but his philosophy also has attracted new attention. This renewed interest in Bruno may perhaps be ascribed to the historical spirit of the age. But the study of his works, besides confirming the impression which his intellectual power and philosophical genius produced at first throughout Europe, and which has perpetuated itself in the history of philosophy, will in the end make it clear that his ideas have still a direct bearing on thought.

The investigations that have been mentioned above have added much to our knowledge of the life of Bruno. The materials for his biography were till lately, besides the letter of Scioppius written from Rome on the 17th of February 1600 (the day when Bruno was burnt in the Campo di Fiora), chiefly the occasional references to events of his life that are to be found in his works. All that could be known at the time was embodied by Bartholmèss in the first volume of his monograph on Bruno, published in 1846. Since then, documents have been discovered at Venice, containing the records of his examination by the Inquisition there, and have been published along with a new biography by Prof. Berti (1868). The same writer has published more recently (1880) copies with which he had been furnished of the Protocols of the Inquisition at Rome relating to the last year of Bruno's imprisonment. These were obtained by a research in the archives of the Vatican which the Roman revolution of 1848 made it possible to begin but not to finish. The principal facts that have been established by these and other documents are given by Prof. Sigwart in an essay included in his *Kleine Schriften* (1881).

The exact year of Bruno's birth was fixed for the first time by the Venetian documents. He was born in 1548 at

Nola in the kingdom of Naples, then under Spanish rule. His baptismal name was Filippo. The name of Giordano was assumed by him when he became a monk of the Dominican order at Naples. His noviciate began in 1562 or 1563. He received full orders in 1572. In 1576 he ceased to wear the Dominican habit. He had already been accused of heresy during his noviciate. He was now charged with holding heretical views on the Trinity. To avoid this charge he fled to Rome. At Rome the charge against him was to have been proceeded with; but he was informed of this, and escaped to Genoa. After residing for a short time in various cities of the north, he at length decided to leave Italy. He went first to Geneva, where there were many Italian exiles; but finding that to live there it would be necessary for him to profess Calvinism, he left Geneva after a residence of about two months. In 1577 or 1578 began his two years' residence at Toulouse. At the University of Toulouse he obtained the degree of doctor, and was appointed to an ordinary professorship of philosophy. In 1579 or 1580 he left Toulouse for Paris. There he published several Latin works, including the *De Umbris Idearum*, besides an Italian comedy, *Il Candelaio*. He refused an ordinary professorship which was offered him at the University of Paris, because in order to hold it he would have had to attend mass. An extraordinary professorship not having this obligation attached to it was conferred on him by Henry III., to whom he had dedicated the *De Umbris Idearum*. Towards the end of 1583 he set out from France with letters from Henry to his ambassador at the court of Queen Elizabeth, Michel de Castelnau, who received him into his house. In London he frequented the society of Sir Philip Sidney, Fulke Greville and other distinguished men. He lectured and held disputations at Oxford. During his residence in England he published the most important of his works, the Italian dialogues; of these the *Cena delle Ceneri*, *Della Causa* and *Dell' Infinito* are dedicated to Castelnau, the *Spaccio della Bestia trionfante* and the *Eroici Furori* to Sidney. In 1585 he returned to Paris, where he drew up theses against the Aristotelian physics, which were afterwards published at Wittenberg. These theses were defended by a disciple of his named Hennequin in a public disputation held on the 25th of May, 1586. Soon after this he left France for Germany. From August 1586 to May 1588 he resided at Wittenberg, lecturing at the University and teaching privately. In his valedictory address to the University he praised the tolerance that was practised there and the courteous manner in which he had been treated. The next place he visited was Prague. In return for the dedication of one of his books he received a subsidy from the Emperor Rudolf II., afterwards the patron of Kepler. From Prague he went to Helmstädt. He composed there the three philosophical poems, *De triplici Minimo et Mensura*, *De Monade, Numero et Figura*, and *De Immenso et Innumerabilibus*, and dedicated them to Henry Julius, Duke of Brunswick. In order to get these books printed he went to Frankfort, where he remained from June 1590 to February 1591. At Frankfort he received letters from a young Venetian noble named Giovanni Mocenigo, asking him to visit him at his house in Venice and instruct him in the art of memory set forth in the *De Umbris Idearum* and other books devoted to the *Ars magna* of Raymond Lully. This was the cause of Bruno's return to Italy. Before his return he spent an interval at Zürich, during which he dictated his *Summa Terminorum metaphysicorum*, first printed, with a preface by Raphael Eglinus, in 1595. After his arrival in Italy in September or October 1591, he lived alternately at Venice and at Padua. In March 1592, he began to reside permanently in the house of Mocenigo. Two months later Mocenigo, constrained "by obligation of conscience and by order of his confessor," denounced him to the Inquisition as a teacher of impious doctrines. He was arrested and brought before the tribunal of the Inquisition at Venice. After his examination it was decided by the Grand Inquisitor San Severina, on the report of the tribunal, that he must be sent to Rome to be judged. The Venetian government was at first unwilling to grant his extradition, but at length yielded; and at the beginning of 1593 he was taken to Rome, where he remained in the prisons of the Inquisition till 1600. Nothing is known of the first six years of this imprisonment. But it is now known from the documents found in the Vatican that early in 1599, at a session of the Congregation held under the presidency of the Pope (Clement VIII.), it was decided that Bruno should be required to abjure eight heretical propositions selected from his writings and from the statements that had been submitted to the Inquisitors. Only one answer of Bruno's is recorded, and this is a declaration that he has seen no reason to change his opinions. On the 9th of February, 1600, he was condemned and delivered over to the secular power, with the usual request, "*ut quam clementissime et citra sanguinis effusionem puniretur*". When the sentence was read to him he answered, as Scioppius says, "threateningly"—"*Majori forsan cum timore sen-*

tentiam in me fertis quam ego accipiam ". Eight days later he was burnt in the presence of a multitude of people who were assembled in Rome for the Jubilee.

More than one passage might be quoted from Bruno's works showing that he had anticipated for himself some such fate as this. When he was interrogated by the Venetian tribunal he admitted that his doctrines were indirectly opposed to the faith. His defence was that he was not an innovator in religion but in philosophy. He declared that he had never attached himself to any heretical sect; that, on the contrary, he preferred the religion of the Catholics to that of the Lutherans and Calvinists, because it laid more stress on good works; and that he was willing to submit to the Church in matters of theology. This last position was, as Berti says, a traditional position adopted by Bruno from the philosophers of the Middle Ages, who had tried to obtain toleration by means of it. In several passages of his works, and not merely in his answers to the Inquisitors, he says that in matters of faith he submits to the theologians. Sometimes this submission is merely ironical; it is in part, as has been said, the traditional means of defence of philosophers against persecution; but it is also expressive of Bruno's philosophy of religion, as will be seen. If it had been possible for Catholicism to grant philosophical freedom, he would have regarded it almost as the philosophers of antiquity regarded the religion of the State. It was philosophical freedom that he claimed, not freedom to found a new religious sect. But philosophical freedom was the kind of freedom that was least of all likely to be conceded by the Catholic reaction. Only an unqualified submission would have satisfied the Church, and this Bruno was incapable of making.

A few months before Bruno's extradition by the Venetian government, Galileo had begun to lecture at Padua. As is well known, Bruno accepted the Copernican astronomy as the basis of his cosmology before Galileo had made his discoveries with the telescope. Kepler, who lived in Prague fifteen years later than Bruno and was acquainted with some of his works, expressed admiration for him and regret that Galileo had not made some reference to his predecessor in the advocacy of the new astronomical doctrines. The fact that Bruno has a place in the history of astronomy as well as in the history of philosophy is expressive of the change that was taking place in the chief direction of the enthusiasm of discovery that characterised the Renaissance in Italy. This enthusiasm had been in great part transferred from the remains of classical antiquity to physical science. The representatives of classical learning were now frequently pedants of the type satirised by Bruno in his comedy *Il Candelaio.* The latter part of the sixteenth century was a period of literary decadence in Italy, not, as in England and France, a period of literary creation. But in England and France the scientific movement had scarcely begun. After he had seen the chief countries of Europe and their universities, Bruno expressed most admiration for the spirit of free intellectual activity that was already making itself felt in the universities of Germany. He praised Luther as the liberator of the human intellect, as a new Alcides greater than the first in that with the pen instead of the club he had subdued a more dangerous and more powerful Cerberus. He seems to have thought that pre-eminence in science as well as in learning had passed for a time from Italy to Germany.

But science and learning were regarded by Bruno as a means to an end. He has drawn the distinction between knowledge that is "instrumental" or "organic" and that which by itself leads to the perfection of the mind.[1] One reason why he so often attacked "the grammarians" was that they were the great representatives in his time of the pursuit of instrumental knowledge as an end in itself. They were at the same time the most prominent among the official defenders of the authority of Aristotle and of received opinions generally, and thus there was another ground of his hostility. But he saw that others besides the humanists might give themselves up to "laborious idleness". He ridiculed some of the researches of mathematicians, physicists and scholastic philosophers no less than those of the grammarians. And he admitted that the minute studies of the grammarians as well as those of logicians, physicists and mathematicians have a certain utility in providing exercises for those who will afterwards go on to the true end of study.

Notwithstanding the admiration which he so often expresses for Copernicus, Bruno was of opinion that he had had too much regard for "mathematical" and too little for "physical" considerations, that he had had in view facility of calculation rather than the nature of things. In his reformed astronomy Copernicus had retained the eighth sphere of the Ptolemaic system, the sphere which was supposed to carry round the fixed stars by its revolution. Bruno abolished the whole system of spheres and substituted for it the idea of an infinite space in which there are innumerable systems like the solar system, having the so-called fixed stars for their centres. But he still thought Copernicus inferior to no astronomer who had been before him. He saw in him the thinker who had set himself free from the opinions of the multitude, and had first made possible the more complete emancipation of the intellect that is the consequence of the substitution of the conception of an infinite for that of a finite universe. This new philosophical conception seemed to him to bring with it far greater good than the discovery of new continents. Those who have discovered new continents, he says, have found out the way to disturb the peace of nations, to multiply vices, to propagate tyrannies, while the new philosophy, on the other hand, liberates the mind from chimeras and shows it how to ascend to the stars.

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[1] *Summa Terminorum metaphysicorum,* ed. Gfrörer, p. 440.

Though Bruno satirised the humanists, he had himself much classical learning. His biographers have remarked the evidences of extensive reading that are to be found in his works. He had studied with special interest the records of the teachings of the pre-Socratic philosophers. He was of opinion that Pythagoras and other early speculators had had a truer view of the universe than that which had triumphed through the authority of Aristotle. He claimed to have revived this earlier and truer philosophy, of which the fragments had first been gathered together by Copernicus, although, for the reason that has been mentioned, Copernicus had not been able completely to convict "the vulgar philosophy" of falsehood.

Another branch of learning to which Bruno had given special attention was the study of mythology; not only the mythology of the Greeks but also that of the Egyptians and of the ancient nations of the East so far as knowledge of it was accessible to him. He had, as Bartholmèss points out, the idea of a science of comparative mythology.

The polemic of Bruno against Aristotle is chiefly directed against his cosmology. He acknowledges his pre-eminence in rhetoric, in politics, in logic, and often quotes his opinions with approval even in physics and in metaphysics; but he accuses him of misrepresenting the opinions of the earlier philosophers who were superior to him. At the same time, in opposing the established cosmological system, he brings against those who appeal to authority the argument that the moderns are really older than the ancients. He preferred Plato to Aristotle, and it is evident that he had been influenced by the Platonists of his own and the preceding age as well as by the Alexandrian Neo-Platonists. Yet he often opposes the Platonic doctrines no less than those of the official Peripatetic philosophy.

A more directly metaphysical impulse was received by Bruno from Nicholas of Cusa than from any other modern thinker. Cusa has been described as the first German who, in the fifteenth century, attached himself to the study of Grecian antiquity. He was known as a reformer within the limits of Catholicism, took part in the Council of Basel, and was made a Cardinal. There are said to be suggestions of some of the new astronomical doctrines in his chief work, *De docta Ignorantia*. The most important idea that Bruno derived from him was that of "the coincidence of contraries". He thought that "the divine Cusanus," as he sometimes calls him, would have been still greater as a philosopher if he had not been restricted through his position in the Church; for Cusa had tried to reconcile his philosophical system with the dogmas of Catholicism.

Bruno ascribed some of the ideas of the Cardinal of Cusa to the influence of Raymond Lully (1235-1315), famous in tradition as an alchemist. Lully was the author of a system of logic by which the Mohammedans were to be converted to Christianity. His disciples maintained that his logical system was a means of discovering all truth. It is worthy of remark that he had not subordinated philosophy to theology; the doctrines of Catholic theology were to emerge as the result of a logical process. Bruno made additions to Lully's system, and during the whole period of his philosophical activity spent much time in writing expositions of it and in teaching it both publicly and privately. That which attracted him in it was probably the conception of the unity of knowledge, expressed in the doctrine that the mind may pass from any one idea to any other idea. But no relation except this very general one can be traced between the logical and mnemonic art of Lully and Bruno's own philosophical doctrines.

If the exposition of the mnemonic art in the *De Umbris Idearum* may be taken as an example, Bruno's treatment of the details of the system founded by him on that of Lully is very obscure. Other passages in his Latin works are affected with an obscurity similar to that of the "Lullian jargon". But this occasional obscurity does not affect the essential character of Bruno's writings. As in the *De Umbris Idearum*, the passages that are of philosophical interest are always perfectly clear. And in the obscure passages themselves there is nothing of the nature of imperfect articulation. It is difficult to believe that they were intended to be understood.

They are, as Berti calls them, "sibylline and unintelligible"; and as he goes on to say, they do not seem to be of any importance so far as their meaning can be conjectured.

The Italian works are free from passages of this kind, and on the whole they are of more interest and importance than the Latin works. The exposition is, besides, more systematic in the chief Italian dialogues than in the Latin poems on the same subjects. But there are many passages in the Latin works that are scarcely inferior to anything in the Italian works, and an account of Bruno's philosophy would be incomplete without reference to them.

Bruno's mode of exposition, both in the Latin and in the Italian works, is literary rather than scientific. He did not, indeed, make any attempt at that elegance of Latin style which was the chief object of the "Ciceronians". And in writing Italian, he thought it absurd to reject a word merely because it had not been used by any classical Italian author. But, on the other hand, he did not make for himself a rigid terminology. He says in the introduction to the earliest of his works that he does not refuse to make use of the terminology of any school, if only it is that by which he can best convey his idea;[1] and in his latest work he protests against the rigid method of interpreting philosophical terms practised by the "Grammarians".[2] Again, he uses quite freely, in order to convey his metaphysical ideas in an imaginative form, both the poetical and the philosophical conceptions he has met with in his reading. He takes pleasure in paradoxes, in ingenious combinations of ideas, so far as they help to bring out more clearly his own thought. He does not, like some philosophers, attempt to construct a system of which every detail shall be expressive of a conclusion that is logically connected with all the rest. But his essential ideas are none the less clear for this. And the vivid colouring that is given to his expositions by the use of illustrations from all sources only makes more evident the originality of his philosophy as a whole.

Bruno's essential originality is in philosophy in the strict sense of the term. He had, however, as has been seen, given special attention to the study of physical science. Some of the scientific speculations that are met with incidentally in his works are interesting as anticipations of modern ideas. He would probably not have laid much stress on them as parts of his contribution to thought; for just as learning was to him material for the expression of his metaphysical ideas, so science was a means of arriving at a true conception of nature as a whole. But in order to illustrate his mode of thought in dealing with special scientific questions, his theory of the causes of the present distribution of life on the earth may be referred to.

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[1] *De Umbris Idearum*, ed. Tugini, pp. 20-3.

[2] *Summa Terminorum metaphysicorum*, Gfrörer, p. 455.

He holds that the earth, under the influence of the light and heat of the sun, has the power of producing all forms of life from any part of itself, provided that the proper kinds of matter are present there. It is not necessary, he says, to suppose that all men are descended from the same ancestor; nor is each of the other races of animals descended from a common ancestor; all kinds of animals were produced in all parts of the earth. But in different places different kinds of animals have been destroyed and different kinds have remained; as in England, for example, certain kinds of wild animals have been destroyed through the cultivation of the country by men, and in other islands all men have perished through the predominance of the more powerful animals or through lack of food.[1]

The mode of thinking that has since given origin to the theory of natural selection is obviously expressing itself here under the limitations imposed by the state of the sciences of life in the sixteenth century. Bruno has speculated in the same spirit on the reason of the distances maintained by the different planetary systems from one another.[2] He has himself indicated the relation of this speculation to the ancient speculations as to the survival of certain combinations of atoms. He had a great admiration for Lucretius and imitated him in his later Latin works. He sometimes speaks of atoms as the "first bodies," the only solid parts of the world.

Atomic speculations, however, are subordinate in Bruno's philosophy. He himself, in the passage just referred to and in other places, distinguishes his doctrine from that of Democritus. He points out that while Democritus regarded life and mind as accidental products of certain combinations of atoms, he on the contrary regards them as equally eternal with atoms. He often quotes the following lines from Virgil as an expression of the doctrine he opposes to that of the Epicurean school:—

> Principio coelum ac terras composque liquentes,
> Lucentemque globum lunae, Titaniaque astra,
> Spiritus intus alit, totamque infusa per artus
> Mens agitat molem, et magno se corpore miscet.

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[1] *De Immenso*, vii., c. 18.

[2] *De Immenso*, v., c. 3.

This doctrine is the philosophical basis of the theory of the origin of life described above. The power of the earth to produce all forms of life from all parts of itself is inferred from the presence of the soul of the world in the whole and in every part.

In Bruno's system God,—the absolute intellect,—is at once the beginning of things and the end to which they aspire according to the degree of their perfection. The divine intellect manifested in nature is "the soul of the world"; in the human mind it expresses itself as the desire to comprehend all things in relation to the unity from which they proceed. All particular things, so far as they are outside the divine intellect, are in truth vanity, nothingness; they have being only so far as they participate in the being of God.

It has been disputed whether Bruno's doctrine is theistic or pantheistic. Carrière, in his book on the philosophers of the Reformation, takes the view that there is a transition in Bruno's writings from pantheism to theism; that the Italian dialogues are more pantheistic, the later Latin works more theistic. E. B. Hartung, in an exposition of Bruno's ethical ideas and of their relation to his metaphysics, admits to a certain extent the truth of this view; but he points out that Bruno's definitions exclude the ideas of the personality of God and of his separateness from the world; since these ideas must be regarded as essential to theism, he concludes that Bruno's doctrine is, strictly speaking, pantheistic. Now both these ideas are just as much excluded from Bruno's later as from his earlier works. It might even be maintained that some definitions in the later works are more distinctly pantheistic than those of the earlier works.

The ground of Carrière's view seems to be this. In the dialogues *Della Causa* and *Dell' Infinito* the unity in which all things have their origin is described as manifesting itself in nature. The other aspect of this unity, its aspect as an end which the human intellect seeks to attain, is indicated and is placed in relation with the first. It is said, for example, in *Della Causa* that the process by which nature descends to the production of things and the process by which the intellect ascends to the knowledge of them are one and the same, that both the intellect and nature proceed from unity to unity through multiplicity. But this other side of Bruno's doctrine is more obvious in the later Latin works than in these particular dialogues. These dialogues, therefore, appear more "pantheistic," in one sense of the term, and the Latin poems more "theistic". But the view that has been supposed to be characteristic of the earlier works is found in the later works also. Here, for example, is an expression of it from the *Summa Terminorum metaphysicorum*—"Natura aut est Deus ipse, aut divina virtus in rebus ipsis manifestata". It is alluded to in the poem *De Immenso* as a doctrine that has constantly been held by the author. And the dialogues *Degli eroici Furori*, which belong to the London and not to the Frankfort period, are devoted chiefly to the expression of the other side of Bruno's doctrine. In these dialogues the aspiration of the mind towards absolute unity is described. It is said that the contemplation of this unity is what the Peripatetics have in view when they say that the highest happiness of man consists in perfection by the speculative sciences. The opinion of Plotinus is quoted with approval to the effect that "the mind" (as distinguished from "the soul") "either is God or is in God". Thus the contrast between the earlier and the later works again disappears. The explanation of its having been supposed to exist is probably that the poems of the Frankfort period, because of the resemblance of their subject-matter to that of the two best-known Italian works, have been compared with these to the exclusion of the others. When they are compared with the Italian works generally, it is seen that the less systematic mode of exposition adopted in them has made it possible to include elements that do not receive full expression in *Della Causa* and *Dell' Infinito*, but which are more completely expressed in the *Eroici Furori* than anywhere else in Bruno's writings.

The two sides of Bruno's doctrine are brought into relation by means of the idea of perpetual transformation, of a descent of beings from unity on the one hand and an ascent towards it on the other. This idea is already present in the first of his philosophical works, *De Umbris Idearum* (1582). In this book, indeed, most of his characteristic ideas are put forward quite distinctly though without the development which they afterwards received.

The influence of Platonism is evident in the title—"Of the Shadows of Ideas". But Bruno distinguishes his own doctrine of transformation from the doctrine of emanation taught by the Neo-Platonists. He holds that as there is a continual passage from light to darkness by which the higher beings become lower, so also there is a continual passage in the opposite direction by which the lowest beings may gradually return to the highest state. Light is here the symbol of the region of ideas, of the absolute unity which alone truly exists. Darkness is merely the negation of light;

it is the symbol of non-existence. The "Shadows of Ideas" are things in nature and thoughts in the mind. They partake of the nature of light and of darkness. Any natural thing can change its form and (within certain limits), assume any other form. Similarly the intellect can pass from any particular thought to any other thought, if it has thoughts that can serve as means between the extremes. The end that the intellect ought to propose to itself is ascent to the region of Ideas, to the knowledge of the One as distinguished from the Many, of the permanent as distinguished from forms that change. The vision of the absolute unity must be described as a state, not as a process. Since the human mind is continually disturbed by sense and imagination, this state cannot last long, and is therefore spoken of in the past rather than in the present tense.

There is a very interesting passage in the *De Umbris Idearum* on the relation of Art to Nature.[1] It is declared that "dædal Nature is the fountain of all arts". For arts proceed from the mind of man; and Nature first gave birth to man with all his faculties. Unless we turn away from her, Nature herself will be present to us in all things. Nature (or the soul of the world, or fate, or necessity, or by whatever other name we may speak of the same power) proceeds from the imperfect to the perfect, and so also does Art, which Nature leads by the hand. Thus—the art of writing being taken as an illustration—men at first wrote on the bark of trees; then succeeded the age that wrote on stone; afterwards the papyrus was used, then parchment, then paper. As there was progress in the materials so also in the instruments of writing; first the knife was used, then the stylus, and so on continually.

This idea again appears in the last book of *De Immenso et Innumerabilibus*. Here a certain reaction from Platonism is perceptible. "Forms without matter," "light without body," are declared to be as absurd as other "separate substances," "abstract species," and "essences without being". The light that the Platonists feign outside things they are told to seek nowhere but in nature and the human mind. The reaction, however, is not from any position taken up by Bruno himself in his first work. It is merely from the use of the language of the Platonists, which expresses his doctrine inadequately so far as it gives the impression that he regards the absolute light, the region of Ideas, as entirely distinct from things. And when we come to the passages containing his doctrine of the divinity of Nature, even the expressions are seen to be almost identical in the two books, though there is an interval of nine years between them.

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[1] *De Umbris Idearum*, ed. Tugini, pp. 59-64.

But the central ideas of Bruno's metaphysics are best seen in the dialogues *Della Causa, Principio et Uno* ("Of the Cause, the Principle and the One"). "The universal intellect" is here declared to be the universal efficient cause. Many names have been given to this cause by philosophers in order to describe its mode of operation. The name that is to be preferred is that of an "internal artist"; for the universal efficient cause gives form to all things from within. The final cause which the universal intellect proposes to itself is the perfection of the world; that is, that all forms shall have actual existence in all parts of matter.

There are two principles of things, "form" and "matter". "Form" as one of the principles of things is to be distinguished from the accidental forms of things. The formal principle is in a manner identical with the efficient cause. For the soul of the world may be regarded now as cause and now as principle. In virtue of the formal principle not only the universe but all its parts are animated. Every portion of matter has its soul or "form". Not all concrete things are alive as such, but all things are alive as regards their substance. The portion of spirit that belongs to any corpuscle is capable of becoming the soul of any kind of animal by receiving the members appropriate to that kind of animal. All motion, all action, is due to the soul or form that is in the universe and in particular things. But there could be no action if there were not something capable of being acted upon, if corresponding to the active power of shaping there were not a passive power or possibility of being shaped in all ways. Hence a second principle or substance of things, "matter," must be assumed in addition to the principle or substance of "form". These two substances are equally eternal. No portion either of material or of spiritual substance can perish. Nothing is ever annihilated except the external and accidental forms of things.

In particular things, "act" and "possibility" do not coincide. No particular thing in the universe is all that it can be. But in the absolute first Principle of things, which is all that it can be, "act" and "possibility" are the same. Material and spiritual substance, "form" and "matter," the active and the passive principle, are therefore, with respect to the whole, identical.

Matter may be considered not only as "possibility" or "potency" but also as "subject". In itself it has no extended form; it is not restricted to any one mode of being. Just as Art deals with various kinds of matter, each capable of receiving many shapes without change as to its composition, so Nature deals with a matter that is common to all things, both corporeal and incorporeal, both sensible and intelligible, and that remains under all changes the same in substance. This matter which is limited to no specific mode of being is identical with "pure act" and with the efficient cause. It has no particular figure or dimensions because it has them all implicitly. It is said to include all forms rather than to exclude them all, because it does not receive them as from without, but produces them from within. This truth was in part perceived by Aristotle, who makes Nature an internal and not an external principle. But instead of declaring that matter, being permanent, coincides with "act," he places actuality in his "forms" and "entelechies," which are accidental and changing, not truly substantial.

The Infinite, in which matter and form, act and possibility, coincide, contains in itself all being and all modes of being. Each particular thing contains the whole as regards its substances, but has not all modes of being. All evil and imperfection consists in this, that particular things, striving to attain the modes of being which they do not possess, lose one mode of being in order to assume another. In the Infinite all things are one; no quality is different from its opposite; a moment is not different from a century, unity from multitude, a solid from a mathematical point.

The doctrine of the coincidence of contraries, by the help of which the unity of all things is demonstrated, has great importance in Bruno's philosophy. It was suggested to him in the first place by the logical law that "the knowledge of opposites is the same". He quotes the opinion of Heraclitus to the effect that since the One, through the mutability of things, contains in itself all forms, contradictory propositions must be true of it. But he ascribes to Nicholas of Cusa the special mathematical development which he gives to this idea. The treatment of the circle may be taken as an example of his development of Cusa's doctrine. It is shown that in the circle a very small arc coincides with its chord and again that the circumference of an infinite circle coincides with a straight line. Hence, it is argued, contraries—in this case the straight line and the curve—are coincident in the maximum and the minimum. The maximum and the minimum themselves coincide in the infinite, because where act and possibility are the same everything is that which it is capable of becoming. The point, for example, by motion can become a line, the line a superficies, and the superficies a solid, and all numbers can be produced out of unity; hence unity coincides with infinite number and the point with infinite magnitude. The point and unity were regarded by Pythagoras and Plato as symbols of the one Principle of things. Pythagoras explained the production of things from the one Principle by the analogy of the production of numbers from unity, Plato by the analogy of the production of all figures by the motion of a point. Both these methods may enable the mind to rise to the contemplation of the One; but that of Pythagoras is the best, because numbers have a higher degree of abstraction than figures.

Bruno develops this Pythagorean idea in the book *De Monade, Numero et Figura.* The Monad here symbolises the absolute unity which contains in itself all being, the identity of the maximum and the minimum. The Dyad is the symbol of difference and division, of the contradictions that are found in things. The final reconciliation of all contradictions, the return to unity, is symbolised by the Triad. Other meanings are assigned to the remaining numbers up to the Decad, and to corresponding geometrical figures; but the philosophical bearing of the chapters of this book that follow the fourth (on the Triad) is not very obvious.

In *Della Causa* the one principle manifested in the universe is distinguished from the universe regarded as a manifestation of that principle. The universe or nature[1] is called the shadow or simulacrum of the principle in which act and possibility coincide. There is not absolute coincidence of act and possibility in the universe; it is indeed all that it can be "explicitly"; but its principle is all that it can be "indifferently"; in the one principle there is no distinction of parts. This view of the universe in relation to its principle is explained in more detail in the dialogues *Dell' Infinito, Universo e Mondi.* Here the universe is called an attribute of God. The infinity of God is distinguished from the infinity of the universe. God is declared to be infinitely and totally in the whole world and in each part of it, while the infinity of the universe on the other hand is totally in the whole but not in each part. The eternal existence of an infinite universe and innumerable worlds is inferred from the infinite power of God by means of the position already established that in God act and possibility coincide. If one attribute of God were finite, then, it is said, all would be finite. Those who maintain that the universe of matter and space is absolutely limited must be asked by what they suppose it to be limited. If they say by an immaterial world or principle, then it must be replied that a material and an immaterial world cannot form one continuum. Beyond the world in which we live nothing can exist but ethereal space and other worlds of similar composition. From the infinity of the universe of matter and space it follows that it can be acted upon by no cause external to itself.

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[1] The word 'Nature' as used by Bruno sometimes means the universe as a manifestation of the divinity, sometimes the divinity manifesting itself in the universe.

In this way Bruno connects his metaphysics with the cosmology which he substitutes for that of the Peripatetics. At the same time he attacks the Aristotelian physics and the Ptolemaic astronomy on purely scientific grounds. The hypotheses of mathematicians have, he says, been put in place of reality. But nature ought to be a law to reason, not reason to nature. To those who appeal to the evidence of the senses in favour of the received opinions, he says that it is really from "an imbecility of the reason" that these opinions proceed, and not from the senses. The senses do not deceive; truth and falsehood are in propositions, not in the elements that sense supplies to reason. Sense itself, rightly considered, suggests the notion of an infinite universe; for we have experience of the illusory character of limits such as the visible horizon, and of the appearances of things at a distance. The hypothesis of an eighth sphere containing all the fixed stars is compared to the opinion of one who, being surrounded by trees, should think the seven nearest to be unequally and all the rest equally distant from him because they appear so. The repugnancy of the Peripatetic doctrine of the motion of the heavenly bodies in perfect circles to all that is observed of nature is frequently dwelt on. According to Bruno, though all natural processes are in a sense circular, nothing ever returns precisely to its former state. He ridicules the fancy of the Platonic year, regarding it as a kind of symbol of the opinion that mathematical exactness is observed by nature. He affirms that no mathematical circle exists in nature, any more than a mathematical point or straight line. Each of the planets has one motion which may be resolved into a number of approximately circular motions, but which is itself neither motion in a circle nor in any combination of circles. The heavenly bodies move freely in infinite space; they are not carried round by spheres. And with the system of the planetary and other spheres the concentric arrangement of the four elements disappears also. In opposition to the Aristotelian doctrine, Bruno argues that the elements have no fixed order of position with respect to one another. They are, besides, never found in nature pure or unmixed. All substances in nature are mixed, and their composition is perpetually changing.

There is no fifth element or "quintessence" in Bruno's system. The stars and planets are not simple bodies, but are of mixed composition like the earth. All the bodies in the universe are made of the same elements or proximate principles as well as of the same primordial matter. In the sun and the stars fire predominates; in the earth and the planets (in which class the comets are included) water predominates. Bodies of the first class shine with their own light, bodies of the second class with a reflected light. But the element of fire is not absent from the earth. And water, being, as Thales taught,[1] the basis of all substances, the common element that binds together the parts of the elements of earth and water, cannot be absent from the sun. Heat and light, besides, are not sensible in themselves. Light, for example, is itself invisible; it is visible only by means of the body in which it inheres. What we call flame or fire is light or heat inherent in a moist body. Hence the sun is not without opacity and coldness as the earth is not without heat and light. The name of "ether" is given by Bruno not to the "quintessence" of which the stars were supposed to be made, but to space as distinguished from matter. He identifies the "immense ethereal space" of his cosmology with the "vacuum" of the Epicureans. Of this vacuum he says "God is the fulness". The "ether," or "heaven," or "space," as distinguished from the bodies it contains, is ingenerable, incorruptible and immovable. Being infinite it has properly no figure; but we may describe it, with Xenophanes, by the similitude of a sphere the centre of which is everywhere and the circumference nowhere.

Since every point of space may in turn be regarded as the centre, all motions may be said to be up or down, towards the centre or towards the circumference, according to the point with respect to which they are considered. There is no difference of up and down, central and circumferential, with respect to the infinite universe. Moving bodies may be called light or heavy according as they are in motion to or from any particular point. But there is no absolute difference of "gravity" and "levity," as there is no absolute difference of central and circumferential positions. Bodies on the earth are said to have gravity with respect to the earth, because it is the system of which they are parts. The parts of the earth are related to the centre of the earth as the parts of an animal are related to the organic centre of that animal. If any part of the earth be removed to a great distance from the centre, it will not tend to return to its own place with a force proportional to its distance from that place (as the Peripatetics are obliged to maintain), any more than a part of an animal, being removed, will tend to return to its place. When it is at an indefinite distance from the system of which it has formed part, a body has no tendency to return to that system; for it is now neither light nor heavy with respect to it. Its motion will be determined by the general law that all bodies seek "the place of their preservation". When a body is in "its own place," that is, the place of its preservation, it is again neither light nor heavy.

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[1] Bruno ascribes this doctrine not only to Thales, but also to "Moses and the Babylonians". Water, being an element in which coldness and darkness predominate, is, he argues, the representative of matter in the Mosaic and Babylonian cosmogonies; light or fire, of spirit. He himself often makes the sun the symbol of spirit or form or the active principle in nature; the earth, of matter or the passive principle.

Neither the material nor the spiritual substance of things seeks to preserve itself or fears to be destroyed, for substance is eternal. But all particular things, being subject to vicissitude, are moved by the desire to preserve themselves in their present state of being *(il desiderio di conservarsi nell' esser presente)*. Contraries are found together in nature, and the desire of self-preservation expresses itself in general as love of that which is similar and hate of that which is dissimilar. But things may seek that which is unlike them in kind, instead of fleeing from it, if it tends to their preservation. The motion of the earth, which is called circular to distinguish it from the rectilinear motion of the parts of the earth (though not one of the four motions of which the earth's total motion is composed is in a perfect circle), is determined by the need which the earth has of the light and heat of the sun. Not only is the earth the source of life to the animals on its surface; it is itself an animal. The sun and all planets and stars in the universe are also animals, which, like the earth, though divine and perhaps not destined to perish, are yet generable and corruptible. They differ from the animals on their surface in that they have all the substance that is necessary for their preservation in themselves, and have not to seek it outside; but they resemble them in this, that they too preserve their life by retaining a certain constancy of form during all changes of the position of their parts. In order that they may remain alive it is necessary that their internal parts should by degrees become external and their external parts internal, that the sea should become land and the land sea; that in short, all parts of them should experience all changes of position.[1] Hence the hot and cold bodies of the universe have need of one another. The earth needs the alternations of light and darkness and of heat and cold that are caused by its diurnal and its annual revolutions, as well as those that take place during longer cycles, in order that all its parts may have all temperatures in turn and that the circulation of matter may be maintained. Thus self-preservation is the final cause of the motion, both rectilinear and circular, of all particular bodies in the universe.

All things are perfect with respect to the order of the universe, but not with respect to the desire of self-preservation that is inherent in each particular thing. Nothing in the universe is in itself either absolutely perfect or absolutely imperfect. God and the universe alone are perfect simply and absolutely. For finite things can only have different modes of being successively; God and the universe have all modes of being at the same time, or rather, without reference to time. As the infinity of God differs from that of the universe, so also the perfection. The perfection of God is in the whole and in every part; the perfection of the universe is in the whole but not in the parts of it taken separately. Things are said to be perfect, not simply and absolutely and in themselves, but in their kind, so far as they attain particular ends. For example, they may be said to be more or less perfect according to the degree of their success in attaining the end of self-preservation. Animals on the earth attain this end imperfectly; for the influx of matter fit to promote their preservation, which is at first greater than the efflux and afterwards becomes equal to it, is at length surpassed by it, and then death of the individual takes place. The heavenly bodies (among which the earth must be numbered) attain the end of self-preservation more perfectly than any other finite things.

The divine will is one with fate. But God acts by the necessity of his own nature, not by a necessity external to himself in the manner of things that are said to be subject to necessity. In God, therefore, necessity is one with freedom. God always acts in the best possible manner because he has perfect knowledge. If men knew all things perfectly they also would always act in the best way, and therefore all would act in the same way. But the wills of men are everywhere perturbed by passion and by the hidden causes of things (*affectu atque rerum latentia*). Hence they must often hesitate before choosing one of two opposite courses. For this reason the liberty of man must be classed among those things that are subject to uncertainty. It is not fitting that this kind of liberty should be ascribed to God.

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[1] Bruno finds suggestions of this theory of the "local motion" of the earth in Aristotle. See Italian Works, ed. Wagner, i., pp. 192-4.

In one place Bruno distinguishes between divine necessity or fate and the necessity of nature. Knowledge and will are declared to be identical both in God and in nature. The order that is in natural things is a kind of knowledge—the knowledge that each thing has of that which is similar and of that which is dissimilar. This knowledge is identical with the will to seek the one and to escape from the other. Now in nature different effects are never the effects of the same will or knowledge. But particular effects are not always produced when the will to produce them is present, because they may be prevented by the action of other things. Thus "the necessity of nature" is the necessity which we ascribe to particular laws of nature; "divine necessity" is the necessity by which the whole could not be other than it is.[1]

This doctrine of necessity, and that of the coincidence of will, power and act in God, by which it is connected with the doctrine of the infinity of the universe, are not to be taught to the multitude; for although they are not really dangerous to morals, yet they are sure to be misunderstood by the unlearned. This has been considered by those theologians who ascribe to God a free-will resembling that of man. They have seen that the multitude will never be able to reconcile merit and demerit in the choice of justice or injustice by men with necessity in God. But philosophers in teaching the doctrine of divine necessity do not wish to deny the merit of right actions or the moral freedom of man; and therefore "the not less learned than religious theologians" have always been willing to grant freedom of philosophising, and true philosophers for their part have always been favourable to religions.[2]

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[1] *Summa Terminorum metaphysicorum*, Gfrörer, p. 512.

[2] *Dell' Infinito*, Wagner, ii., pp. 26-7.

In defending himself against those who bring arguments from the Bible against the Copernican astronomy, Bruno takes up the position that the Bible is a moral revelation, not a revelation of speculative truth. The object which a wise legislator has in view is, he says, to teach the multitude to choose the good and to avoid the evil. In aiming at this object he speaks in the manner of the vulgar about things that have nothing to do with practice, leaving the further consideration of them to "contemplative men". If he were to use terms understood only by himself and a few others, and to make great case of things that are indifferent to the ends for which laws are ordained, he would be thought to address himself not to the multitude but to "wise and generous spirits," to those who "without law do what they ought". But for these demonstration is required; faith suffices only for the many, for those who cannot act rightly without external law.

The sacred writers, then, must not serve for authorities when they speak as "presupposing in natural things the sense commonly received," "but rather when they speak indifferently," that is, without reference to practice. Regard must be had not only to the words of "divine men" speaking thus, but also "to the enthusiasms of the poets, who with superior light have spoken to us". In accordance with this principle Bruno finds in the *Book of Job* suggestions of some of his physical theories; he often quotes passages from *Ecclesiastes* in support of his doctrine of the permanence of substance; and in the Mosaic cosmogony (as in other cosmogonies) he finds the distinction of matter and form. The speculative parts of all religious systems are for him an exoteric philosophy. In one place he says that the veil which covered the face of Moses, and which signified, according to the Cabbalists, a veil that was over the law, was not for deception, but to prepare the eyes of men for the light, which would cause blindness if they were suddenly to pass into it from darkness.[1]

The essential end of all religions being practice, it follows that they are good in proportion as they encourage right action. This view is developed in the *Spaccio della Bestia trionfante*, a book which, as Bruno explains in the dedication, has for its chief object to lay the foundation of his moral philosophy. It is only in this book and in its sequel, the *Cabala del Cavallo pegaseo*, that he makes an attack which is direct and at the same time more than incidental on the religion of his age; and this attack is on ethical grounds. The Christianity of the sixteenth century came very far short of his ideal of a religion that should always have ethical ends in view and should not discountenance intellectual liberty. Catholicism seemed to him to exalt credulity and ignorance to the rank of virtues and to discourage scientific curiosity as being in itself evil rather than good; and to Protestantism as a religious system he was less favourable than to Catholicism, for the doctrine of justification by faith seemed to him directly opposed to the true object of a religion. The gods, it is frequently said in the *Spaccio*, ought to be thought of as rewarding the good and punishing the bad actions of men, not for their own sakes, as if they could receive any benefit or injury from their worshippers, but for the sake of men. Laws have been ordained for the good of human society; and because some men do not see the fruit of their merits in this life, there have been placed before their eyes in another life rewards and punishments according to their works.

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[1] *De Umbris Idearum*, ed. Tugini, pp. 33-4.

The *Spaccio della Bestia trionfante* ("Expulsion of the triumphant Beast") is an allegory of which the chief personages are the Greek gods and goddesses. The interlocutors in the dialogues are Saulino—the representative of the philosopher—Wisdom (Sofia), and Mercury. At the beginning of the first dialogue Wisdom relates to Saulino that the gods, finding themselves to have grown old, are offering up prayer to the Fates (although they know that Fate is inexorable), that they may either maintain their present state of being, or, if this is not permitted, then that they may enter into a better and not into a worse state. For Jove and the other gods are subject to change; it may be that they too have to pass the shores of Acheron. And they are afraid that the next great revolution of the world will be quite different from those that have gone before, and will not end in a mere change of dynasty. In order to preserve their existence, they have resolved to put away their vices, and, as a symbol of this change in themselves, to expel from heaven the records of the evil deeds of their youth, and to substitute the moral virtues for the monsters and deified human beings they had formerly placed in the constellations.

The "expulsion of the triumphant beast" from heaven and the assigning of a constellation to each virtue is effected by a council of the gods which is called by Jupiter. The mythological monsters and the heroes who had had places in the constellations along with them are disposed of in various ways. Hercules and Perseus are sent down to the earth to slay or expel certain new monsters that trouble it. By these the spirit of superstition and religious persecution is signified ; and this expulsion of monsters from the earth is a second meaning of the title of the allegory.

The virtues to which the gods assign the chief places in heaven are, in order of dignity, Truth, Providence or Prudence, Wisdom, Law, and Judgment. Truth is explained in the dialogues to be, in the highest sense, identical with the first Principle of things, with the One and with the Good. This first and highest Truth is superior to Jupiter. Besides the truth that is said to be "before things" as being their cause and principle, there is a truth that is "in things" and a truth that is "after things". The truth that is in things is that by participation in which they have being. The truth that is after things is the knowlege of them as it is in the human mind. Providence is "the companion of Truth," and is identical with liberty and with necessity. In its lower form it is called Prudence, and is the discursive knowledge which the mind has of the order of the universe. Wisdom, like Truth and Providence, has a higher and lower form. Its higher form is identical with Truth and with Providence. Its lower form is not truth itself but participates in truth, as the moon shines by the light of the sun. The first Wisdom is above all things, the second is "communicated by words, elaborated by the arts, polished by discussions, delineated by writing". Law is the daughter of Wisdom. It is by Law that states are maintained. No law is to be accepted that has not for its end to direct the actions of men in such a way that they may be useful to human society. Next to Law has been placed Judgment, into whose hands Jove has put the sword and the crown, for the punishment of the bad and the reward of the good. By the representative of this virtue services and injuries done to the commonwealth are to be judged greater than all others ; internal sins are to be judged sins only so far as they are capable of having an external effect ; repentance is to be approved but not to be esteemed equal to innocence.

That which is brought out most clearly in this distribution of the chief virtues is the importance that Bruno attaches to knowledge as an essential condition of right action. The distribution of the virtues that follow judgment has less purely philosophical interest ; but the discussions of particular virtues help to show us what was Bruno's moral ideal. They display his admiration for the illustrious characters of Greece and Rome and his preference of the antique type of the hero to the mediæval type of the saint.

It has already been seen that Bruno regarded the supernatural sanction of morality as having some value for those whose actions must be regulated by external law. Since the fear of human justice is not sufficient to repress wrongdoers, it has been necessary, in his view, that the fear of divine justice should be added. The anthropomorphic gods may preserve their existence by doing reverence to the Truth that is above them and by making themselves the guardians of morality.

An episode of the *Spaccio* which has much interest in relation to Bruno's philosophy of religion is the discussion of Greek and Egyptian polytheism in the third dialogue. It is contended that both the Greeks and the Egyptians worshipped under many forms the one divinity that is latent in all things; the Egyptians chiefly under the forms of animals, the Greeks chiefly under the forms of men. Jupiter was once a king of Crete and a mortal man; the name of Jupiter was given to the divinity seen under a certain aspect, not because it was supposed that the mortal Jupiter was a god, but because it was held that the divinity was in Jupiter as in all things, and because in the extraordinary magnanimity or justice of Jupiter was seen the magnanimity or justice of the divinity. As the Greeks gave the names of men who had once lived on earth, and in whom more than in others certain divine qualities had been present, to particular aspects of the divinity, so the Egyptians gave the names of various animals to aspects of the same divinity manifested in its descent to the production of natural things. It is maintained by Isis in the assembly of the gods that the wisdom of the Egyptians consisted in knowledge of the processes by which the life that is manifested in the multiplicity of things returns to its source, and that this knowledge was embodied in the Egyptian religion. The Greek and Egyptian deities complain that the Jews and the Christians, having really fallen into the errors from which their own worshippers have been proved to be exempt, and being besides open to every accusation they can bring against others, yet reproach with idolatry those whose knowledge of the divinity was far greater than theirs. Isis declares that the followers of new religions have triumphed, not by their own merits, but because fate, in the vicissitudes of things, gives its time to darkness. The prophecy is ascribed to Hermes Trismegistus, that after the ancient religions have fallen there shall come a time when darkness shall be preferred to light and death to life, when those who attach themselves to "the religion of the mind" shall not be permitted to live; but after these things have happened the world shall by some new revolution be restored to its ancient countenance.

In all this it is clear that Bruno regarded those religions from which the pantheistic view of nature had not disappeared as more favourable to the true philosophy than the monotheistic religions; but these passages must not be understood as a direct attack on Judaism or Christianity. To aim directly at the subversion of the popular religion because it was unfavourable to the true philosophy would have been inconsistent with his view that the end of all religions is properly ethical. The difference between the positions he takes up when he is considering religions from the point of view of ethics and when he is considering them from the point of view of his philosophy of nature is seen in this: that the goddess of Wisdom is represented as expecting the return of light in Europe after a long period of darkness, but as not having control over the vicissitudes by which the alternation of light and darkness is caused, while Judgment on the other hand is directly charged by the gods to destroy those forms of opinion that represent them as indifferent to the actions of men and caring only for their beliefs.

Some have found in the *Eroici Furori* an expression of Bruno's esoteric religion. This term, however, does not seem to be strictly applicable here; for Bruno always associates religion with ethics, and he distinguishes the "infinite aspiration" which is the subject of the *Eroici Furori* from "virtue" as defined by him in the same book.[1] His definition of virtue is founded on his theory of pleasure and pain. According to this theory all pleasure consists in a certain transition, and is pleasure only by contrast with a state of pain that has preceded it. Since in this transition, as in all motion, contraries coincide, since the end of one of two contrary states is the beginning of the other, there can be no pleasure without mixture of pain. At the highest point of pain or of pleasure the wise man always expects a reversal of his state. By considering the mutability of things he may at length arrive at indifference to all pleasures and pains. It is in this indifference that perfect virtue consists.[2] As the wise man is set free from subjection to pleasures and pains by the knowledge that in the vicissitudes of things all states are at length reversed, so he is set free from subjection to the desire of self-preservation by the knowledge that nothing which is substantial can truly perish. This liberation from "the fear of fortune and death" is often described by Bruno as one of the chief results of his philosophy. It is conceived as an ethical state, since the disposition of the wise man with respect to mutable things is identified with virtue. At the same time it is not regarded as attainable by the mere practice of morality, but only by the contemplation of philosophic truth; and this is accessible only to the few.[1] To this outcome of Bruno's philosophy the name of an esoteric religion may properly be given. He himself contrasts it with the "vain fear and desperation" caused in "stupid and ignorant souls" by "foolish faith and blind credulity".[2]

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[1] Part i., Dialogue 2.

[2] Bruno does not deduce the particular virtues from his definition of the ideal virtue which is the result of the contemplation of philosophic truth. It has been shown by Hartung that Aristotle's doctrine of the mean has had more influence on the definitions of particular virtues in the *Spaccio* than any other general principle.

In the *Eroici Furori* it is not the ethical effect of the contemplation of truth, but the pursuit of truth in itself that is described. The *eroico furore* is first of all the desire of absolute truth. It is said to be different from other *furori* not as a virtue from a defect, but as a defect that is in a more divine subject or that is present in a more divine manner. The *eroico furioso* resembles the ideally wise or virtuous man in having escaped from subjection to the desire of self-preservation and to common pleasures and pains; but he differs from him in this, that in the pursuit of his object he never attains the point of indifference. He has no sooner perceived truth under any one form than he perceives the limits of that form. Thus he is constantly impelled to go beyond that which he possesses; for the mind cannot rest satisfied with a knowledge that is limited and therefore imperfect. Since knowledge is impossible except under limits, he is always in motion between the extremes of pleasure and pain.

The *eroico furore* is sometimes described as an "intellectual love". It includes not only the desire of absolute truth, but also the desire of absolute beauty. This desire is excited by the beauty which is perceived in particular forms, and which is one of the manifestations of the soul of the world. But beauty, like truth, can only be perceived under limits beyond which the mind is impelled to pass; and therefore the pursuit of beauty also is a pursuit of which the end can never be attained.

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[1] See for example the opening of the seventh book of *De Immenso*.

[2] *Spaccio della Bestia trionfante*, Wagner, ii., p. 241.

Sometimes, however, the end of the aspiration of the *eroico furioso* is spoken of as if its attainment were possible. It is then called "beatitude," and is said to consist in transformation or absorption into the object contemplated. Beatitude is also represented, in at least one place, as accompanying complete virtue. The doctrine of Epicurus is interpreted in the sense that virtue and the divine or heroic love are imperfect unless a feeling of happiness has been joined to them which no evil is able to take away.[1]

It is to be observed that the use of the word 'matter' in the dialogues that have just been considered differs from the use of the same word in *Della Causa*. Matter, in the *Eroici Furori*, instead of being described as that which produces from itself forms which it contains implicitly, is described in the manner of the Platonists, as that which impedes the ascent of the spirit. Bruno was not unconscious of this difference. He suggests the explanation of it himself in the dedication of the *Eroici Furori*, and in other places. It is a difference of expression that is explained by his doctrine of "the circle of ascent and descent". The forms that are emerging from "all-productive matter" seem to themselves to be impeded by it, because of the necessity they are under of passing through intermediate forms before reaching those that are highest. And the forms that are descending in the scale of being seem to themselves to be obeying an attraction towards "a less good," when they lose in the multiplicity of "the imagination" the unity of "the mind". If, on the other hand, the process of change is looked at as it were from the outside, it is seen that both the ascent and the descent of beings are determined by "the necessity of an internal law".

Not only does the idea of two kinds of change undergone in perpetual alternation by all forms of things supply the explanation of differences of expression as regards 'matter' that are met with in Bruno's works, but, as has been already indicated, the doctrines of the 'soul of the world' and of the absolute mind or intellect, which have been supposed by some to belong to different stages of his thought, are united by this idea. The theory of metempsychosis which is developed chiefly in the *Eroici Furori*, but which appears also in the *Spaccio* and in the *Cabala del Cavallo pegaseo*, is in part an expression of this idea in the form of a kind of philosophic myth. At the same time a concrete form is given to other ideas by means of it, and in particular to the doctrine of the permanence of mind.

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[1] Wagner, ii., pp. 366-7.

Bruno finds the elements of his theory of metempsychosis in the traditions as to the teachings of the Druids, the Chaldæans, and the Magians, in the opinions ascribed to Pythagoras, and in the doctrines of certain Jewish sects and of some of the Platonic schools. He represents the souls of men, of animals, and even of things commonly called lifeless, as alike in substance and differing only as to the kind of body they have last received. According to the nature of their deeds and aspirations when dwelling in one body will be the nature of their next embodiment. Each soul modifies the shape of the material substance of its own body as it becomes itself better or worse. Thus from the outward forms of men it may be known whether their next embodiment will be of a higher or of a lower kind. In the eternal metamorphoses of matter all souls receive all corporeal forms. No soul ever reaches a final state; all alternately approach and recede from the unity of the absolute intellect, become subject to matter and escape from it. This is figured in mythologies by the legends of gods that have assumed the shapes of beasts and at length by their innate nobility resumed their own forms. Those who aspire to the divinity by intellectual love may be described as changing themselves into gods. That metamorphosis is of all things and is eternal, and that all souls must return from the highest to the lowest and again from the lowest to the highest state, has been taught by all the great philosophers except Plotinus. All the great theologians, on the other hand, with the exception of Origen, have taught that metamorphosis is neither of all things nor eternal, but that those changes which are undergone by a certain number of souls have a period. The doctrine of the theologians is fit to be taught to those who, being now with difficulty restrained from evil, would be restrained with still more difficulty if they came to believe themselves subject to some lighter conditions of reward and punishment.[1] But that doctrine is to be esteemed true which is taught by "those who speak according to natural reason among the few, the good and the wise".

It is clear from many incidental expressions that, as Bartholmèss says, Bruno does not advance the theory of metempsychosis as a positive doctrine. Yet, as has been seen, he conveys under the imaginative form of this theory some of the principal ideas of his philosophy. From his mode of combining the idea of metempsychosis with that of metamorphosis it may be inferred that his doctrine of "the immortality of the soul" is not a doctrine of personal immortality. This indeed is evident from the frequency with which he speaks of the souls as drinking of Lethe before passing into a new state of existence. Of this idea as well as of his doctrine of "the soul of the world" he finds an expression in Virgil; and he finds it in the passage from which he has taken the lines that have already been quoted,—in the speech of Anchises which, according to tradition, contains an account of the doctrines of Pythagoras.[1] Virgil in the latter part of this passage makes Anchises tell how the souls that have attained Elysium become willing to enter into new bodies.

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[1] Wagner, ii., p. 309. Bruno, however, does not always admit even the utility of the theological dogma in question here. See *De Immenso*, vii., c. 11.

> Has omnes, ubi mille rotam volvere per annos,
> Lethaeum ad fluvium Deus evocat agmine magno;
> Scilicet immemores, supera ut convexa revisant,
> Rursus et incipiant in corpora velle reverti.

Or as Bruno expresses it in the language of his own philosophy, the transmigrating souls, by the compassion of Fate, are caused to drink of the waters of Lethe before receiving new forms, in order that they may suffer as little pain as possible from the inevitable contradiction of their desire to maintain their states, and that after every change of embodiment they may remain equally desirous of preserving themselves in their new state of being.

In the foregoing article the aim has been to explain the ideas of Bruno in their relations to one another. Before continuing the study by any attempt at a critical estimate, it seems well to wait for the appearance of the book on "The Life and Works of Giordano Bruno" which has been for some time announced by Messrs. Trübner.

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[1] *Æneid*, vi., 724-751.—Bruno refers to Virgil as the "Pythagorean poet".

VI.—DISCUSSION.

ON THE CLASSIFICATION OF THE SCIENCES.

By H. M. Stanley.

The subject of the Classification of the Sciences has received considerable attention from philosophers, from Plato down to Mr. H. Spencer, but yet we have no generally received classification, and are, perhaps, not likely to have one. Prof. Jowett thus comments on the subject in the introduction to his translation of Plato's *Sophist* :—

> "In several of the later dialogues Plato is occupied with the connexion of the sciences, which in the *Philebus* he divides into two classes of pure and applied, adding to them as elsewhere (*Phaedr.*, *Crat.*, *Rep.*, *Polit.*) a superintending science of dialectic. This is the origin of Aristotle's Architectonic, which seems, however, to have passed into an imaginary science of essence, and no longer to retain any relation to other branches of knowledge. Of such a science, whether described as 'philosophia prima,' the science of *οὐσία*, logic, or metaphysic, philosophers have often dreamed. But even now the time has not arrived when the anticipation of Plato can be realised. Though many a thinker has framed a hierarchy of the sciences, no one has as yet found the higher science which arrays them in harmonious order, giving to the organic and inorganic, to the physical and moral, their respective limits, and showing how they all work together in the world and in man."

Among recent systems of the sciences, those of Auguste Comte and Mr. Spencer have deservedly received special attention. Comte's classification has been searchingly and severely criticised by Mr. Spencer in his *Classification of the Sciences*, and by his disciple, Mr. John Fiske, in *Cosmic Philosophy*. Mr. Spencer's scheme has been acutely criticised by Prof. Bain in the appendix to his *Logic*, vol. i., and by Chauncey Wright in an article on the Spencerian Philosophy in the *North American Review*. While we may not admit all the sweeping criticisms made upon Comte by Mr. Spencer and others, still we must admit that Comte's plan of the sciences has been shown to be quite imperfect; while Comte's scheme was superior to all that had preceded, in that he clearly laid down certain scientific principles, historical and logical, quite in contrast to the fancifulness of many previous classifiers. Still, in his love for wide generalisation, he made his greatest mistake, we think, when he attempted to found his classification upon the concurrence of many principles, instead of rigidly adhering to a single principle. He tried to classify according to all his principles at once, and he was bent on seeing only what would fit into his conceptions. His whole scheme is carried out in a spirit far too deductive. The truth is, as Mr. Spencer has shown, that a thorough following out of his principles would bring discordant classifications; that the order of dependence, for instance, is very complex, and far different from that of historic development. We would add, further, that the form of the order of historic development is ramifying, and not linear as Comte supposed.

As Comte made an advance on all previous classifiers in adopting clearly defined and scientific principles of classification, so Mr. Spencer made an advance upon him in classifying, not by many principles, but by a single principle, that of increasing concreteness. Prof. Bain justly criticises his scheme as too revolutionary and far-fetched, as well as lacking in exactness. Chauncey Wright criticises it as merely adding useless terms for divisions of the sciences already recognised by a proper nomenclature. The Abstract, Abstract-Concrete, and Concrete Sciences of Mr. Spencer are, in his view, simply equivalent to the old distinctions of Formal, Mixed, and Material Sciences.

There is one thought with reference to the plans of Comte and Mr. Spencer which is of interest and which we will note here, and that is the relation of their principles of classification to certain educational principles or laws of mental growth. Mr. Spencer exhibits an order from abstract to concrete, and the well recognised order of intellectual growth is the reverse, from concrete to abstract. Comte's classification claims to represent the order from simple to complex, and from general to special, and the order of mental growth is the first as stated, and the second reversed. We should expect that the order of individual mental progress would fairly represent the order of the progress of the race in the sciences, but this is plainly not the case. Mathematics, for instance, the earliest of the sciences in developing, dealt with the most simple but with the most general and abstract of notions. Its rapid progress was due in great measure to progress according to the law of least mental resistance. It was easier for the mind to work out an ideal world of form, than to patiently make inductions among the complexities and perplexities of the actual world of things.

Without commenting further on the classifications of Comte and Mr. Spencer, let us approach the subject for independent study from a logical point of view. In treating any subject we assume that it is the first work to define the subject, to attain a clear idea of the material with which we are to deal.

In forming a classification of the sciences it is a preliminary step of prime importance to decide what departments of knowledge are to be considered as sciences. What is a science? For lack of a clear understanding with reference to this fundamental question there has been much confusion, since even accurate writers use the term science in radically different meanings. Some claim that Political Economy is not yet a science, and many assert that it is. Different writers, having different conceptions of what constitutes a science, have assigned different dates to the birth of Geology and other sciences. Professor Huxley defines science as "organised common sense," and Mr. Spencer as "partially unified knowledge". Science has also been defined as systematised knowledge, rationalised knowledge, verified knowledge, classified knowledge, &c. It seems to us that such definitions are difficult of application, and we would define science historically as the knowledge of any department resulting from intelligent and special investigation, according to a rigid method. It is thus distinguished from ordinary knowledge by the rigidity of the method, and the special and intelligent attention given. As soon as any intelligent worker gives any results of investigation in any particular line we have the nucleus of a science. M. Pouchet well remarks: "A science is founded as soon as a fact, whatever it may be, is well settled. It forms a point whence we set out on new discoveries, until another and broader one has been found." Adam Smith organised the science of Political Economy, but Aristotle and others, centuries before, left results of intelligent investigation in this field. The one who brings the first material for the building of a house is building it as truly as the architect who designs the whole. The difference between the house and the science is this, that a great deal of material for a science is collected long before the architect makes his appearance, while in the case of the house the material is collected at the instance of the architect. All sciences have a descriptive or natural history stage of growth before they arrive at the period of organic growth, and organic growth often proceeds for many years before the science receives general recognition as an organised science.

Classifications of the sciences may evidently be either *historical* or logical. An *historical* classification would show the sciences in the order of genesis, and this view of the subject would belong to the science of the history of the sciences. This is a science which has been too little cultivated. Dr. Whewell made some progress in this line of study in his *History of the Inductive Sciences*, but this was only a partial treatment, and, moreover, we have a vast amount of material which was not open to him. The science of the history of the sciences may be conceived as in some measure the correlative of the science of religions. Religions are bodies of belief concerning God and a future life, and the science of the history of religions investigates the genesis, growth and relationships of these bodies of beliefs. Sciences are bodies of beliefs concerning nature, man, and God, arrived at by rigid method and intelligent and special attention; and the science of the history of the sciences investigates their genesis, growth and relationships. The history of science is thus a legitimate historical science correlated with the history of religion and the history of philosophy. In tracing the rise and progress of the sciences we should find that a genetic classification would be in ramifying form rather than linear, would present the appearance of a tree with intertwining branches, rather than of an upright pillar. The genetic classifications of organisms and languages, and all genealogies present this ramifying order. It was a mistake in Comte to suppose that a linear order could represent an evolution. Owing to the many circumstances, social, political, and religious, which have influenced the appearance of the sciences, in their organised as well as their descriptive stage, a classification according to historic development presents great difficulties. Both Mr. Spencer and Mr. Fiske have very justly insisted on the complexity of influence. We hope, however, that in these days of enthusiastic historical research some one may be found to give to the history of the sciences the attention it deserves, and bring out clearly a genetic classification and the laws of the growth of the sciences.

It may not be amiss here to turn aside and consider a law of the growth of the sciences which seems to me of some importance, and that is the law of growth from *static* to *dynamic*. This has been hinted at by Prof. Joseph Le Conte and others, but has not yet received the discussion which it merits. This is a law of progress, not only in scientific, but also in ordinary and philosophic knowledge. Ordinary observation naturally proceeds from noticing what things are to observing, or more frequently guessing as to, how things have become what they are. Mythologies and folk-lore have, to a great extent, grown up in this way. Philosophy in Greece speculated as to how things have become what they are, and set forth water, fire, and air as primal elements. In science the ancients were mostly confined to the descriptive stage; there were no scientific theories of atoms and evolution, only philosophic hypotheses; and the sciences remained for the most part undetached from their mother philosophy. After the moderns had caught up the broken thread of past culture, they began to observe for themselves, and descriptive science progressed very rapidly. Great advances were early made in Geography, the static science which treats of the earth as it is; but geology, the dynamic science of how the earth became what it is, rapidly developed at a much later period. Static Astronomy grew up under the labour of Copernicus, Galileo, and Kepler, but it was reserved for Kant and La Place to propound the nebular theory of the development of celestial bodies and systems. Physics has, within comparatively recent times, received its dynamic complement in the theory of the convertibility of forces. Mr. Norman Lockyer's recent hypothesis of the convertibility of the elements has in it a gleam of promise that we may yet know the history of the elements. Botany and Zoology, the sciences of plants and animals as being, are now supplemented by Biology, the science of organisms as becoming. Human Psychology was long a simple static science of mind, but Paedagogy, as the science of education, the science of mental growth, and, applied as an art, the art of inducing mental growth, is now fast becoming the correlative dynamic science of mind. Grammar and Lexicography have long studied structure and function in language, but Glossology now investigates genesis and growth. History has long presented little else than panoramic views, pictures of how society was, but Sociology would set forth society as a growing organism. The idea of evolution is now fast permeating even Theology, although it is, of course, subjective evolution, an evolution not in the object-matter but in the ideas of the object-matter. Biblical Theology is now tracing the growth of religious ideas in the *Old* and *New Testaments;* and the sciences of comparative religion and mythology are tracing the growth of religious ideas in general. The following tabular outline, which may in some sense be termed an historical classification of the sciences, may be of service :—

Static Sciences.	Dynamic Sciences.
Geography.	Geology.
Astronomy.	Nebular Theory.
Physics.	Theory of Convertibility of Forces.
Chemistry.	Lockyer's Hypothesis.
Zoology and Botany.	Biology.
Psychology.	Paedagogy.
Grammar and Lexicography.	Glossology.
History.	Sociology.
Theology.	Science of Religion.
Sciences of Being. Sciences of Structure and Function.	Sciences of Becoming. Sciences of Growth.

Although Mathematics is not placed in the above scheme, yet dynamic conceptions, such as the theory of fluxions, have played an important part in its later growth. Kant strongly insisted on the distinction between "Physiography" and "Physiogony," descriptive and genealogical science, corresponding to these divisions into static and dynamic science. All the sciences are pressing forward to, or have already attained, the evolutionary or dynamic stage of progress, and the idea of evolution is becoming a ruling idea in the world of science.

If every science has static and dynamic divisions, it would seem best to indicate the fact by an appropriate terminology. If we take Geology in the literal sense as the science of the earth, we have Geography, the science of structure and function of the earth, as its static division, and Geogeny, the science of the growth of the earth, as its dynamic division. The terminations *logy*, *graphy*, and *geny* might, perhaps, be extended to all the sciences, giving what is assuredly much needed, something like a scientific terminology to the sciences.

Having thus considered, in a general way, historical classification, and a law of historical growth of the sciences, let us next consider *logical* classifications. Classifications based on such principles as dependence, increasing concreteness, generality, and complexity, are logical classifications, and should not be confounded or identified with historical classifications. Logical classifications are undoubtedly to be placed under the domain of philosophy, though we sometimes see them connected with systems of logic. Every complete system of philosophy would naturally include a classification of the sciences ; and within the last century especially it has seemed necessary to philosophers to bring their universal principle to bear on a classification of the sciences. Every system of philosophy, as seeking to account for all phenomena by a single unifying principle, must include the sciences as anthropological phenomena. Hegel gives us a complete classification from the point of view of his philosophy, as also does Comte. Mr. Spencer's classification of the sciences does not seem to be in any vital connexion with his system of philosophy. He uses, as the principle of his classification, increasing concreteness, whereas, the prime principle of his philosophy being evolution, it would be in consonance with his philosophy that he should give this as the principle of classification, thus attaining the evolutionary or genetic classification of which we have already spoken.

The best principle for a logical classification must be the simplest and most comprehensive, and it will be the aim of the rest of this article to set forth what we may term the unitary principle of classification, as one which may have some value. The fact that there are different levels in nature, the higher dependent on and made up of the lower, has often been noticed, but it has never been applied to a classification of the sciences. Science has certainly been revealing more and more clearly that nature is a system of interdependent aggregations of units, and the sciences will, we think, be found to have been gradually determining themselves as to subject-matter with reference to these units. Mr. Spencer frequently refers to this conception, but never makes use of it as a principle of classification. For instance, we take the following extract from *First Principles*, pp. 383, 384 :—

> "The automatic movements of the viscera, together with the voluntary movements of the limbs and body at large, arise at the expense of certain molecular movements throughout the nervous and muscular tissues, and these originally arose at the expense of certain other molecular movements propagated by the sun to the earth ; so that both the structural and functional motions which organic evolution displays are motions of aggregates generated by the arrested motions of units. Even with the aggregate of these aggregates the same rule holds. For among associated men the progress is ever towards a merging of individual actions in the actions of corporate bodies. While, then, during evolution, the escaping motion becomes, by perpetually widening dispersion, more disintegrated, the motion that is for a time retained becomes more integrated. And so, considered dynamically, evolution is a decrease in the relative movements of parts, and an increase in the relative movements of wholes—using the words parts and wholes in their most general sense. The advance is from

the motions of simple molecules to the motions of compound molecules, from molecular motions to the motions of masses, and from the motions of smaller masses to the motions of larger masses."

There may be compared with this extract *Biology*, p. 109, and *Classification of the Sciences*, *passim*. But we shall seek to trace this principle as helpful in a classification of the sciences.

The units which are, no doubt, fundamental to all others are the units of number and form of which mathematics treats. From the integer one all numbers arise, and by the motion of a point all forms arise. Mathematical units and aggregates are ideal, or rather are imperfectly actualised. In a classification according to the principle adopted we should best regard Mathematics, not as constitutive, but as concomitant with the other sciences, as presenting an ascending series of increasingly complex units concomitant with the sciences; and in the scheme subjoined to this explanation we have so placed it. The mathematics of a molecule is more complex than that of an atom; and we know that the highest forms of matter present the most complex curves. Clifford and others have speculated as to what order of curves an investigation of the phenomena of life requires. The most refined piece of matter in existence is the human brain, and it presents, no doubt, mathematical complexities of a very high order. At each increasingly complex stage in nature there is, then, a corresponding mathematical stage, whose complexity is measured by the combination of simpler elements.

The atom is confessedly the lowest unit which science has yet revealed, but it is quite conceivable that we may yet find an atomecule which shall bear the same relation to the atom which the molecule does to the mass. It is the unit of chemical forces, and Chemistry may be defined as the science of the atom. Molecules are aggregates of atoms, and are the units of physical forces; hence we have Molecular Physics as a branch of science. Molecules are aggregated into masses, which act under molecular forces as units, as when the piston is moved by the molecular energy of the steam in the cylinder. Masses are rendered possible by the dissipation of molecular energy, and even gravitation may possibly be considered as the tendency to massing inevitably arising from the dissipation of energy. As dissipation is continually increasing, gravitative tendency is continually increasing, although restrained by the original projectile force. We would divide masses into *orbital* and *non-orbital*, the orbital being those which perform an orbit in the heavens, and the non-orbital those which rest on the orbital, and have been differentiated from them. Astronomy and Geology treat of the first class of masses. The distinction between these sciences is, as Mr. Spencer remarks, non-essential and relative: Geology, as the science of the earth, treats of that heavenly body with which we happen to be best acquainted. Non-orbital masses are subject to Molar Physics. Viewing a mass as an aggregate of molecules bound together by cohesion into a whole capable of motion, and having definite form and size, we may distinguish molar, molecular, and atomic stages in the history of matter. The moon, without atmosphere and water, seems to be wholly molar, while the earth is mostly molar though still in the molecular stage as regards air and the partially molar water. The sun is probably mostly molecular and atomic, while a nebula may be wholly atomic. With the diffusion of the high nebular energy, atoms are aggregated into molecules, and molecules into masses.

The non-orbital mass is really sub-mass; and the first non-orbital masses upon the earth were igneous rocks. These sub-masses were reduced to a long series of sub-masses, whence, according to the evolution-hypothesis, arises the living man. This is, as Prof. Du Bois Reymond says, a mass noted for its unstable equilibrium, a stream of matter constantly flowing through it, and its life consisting in intercommunication. The living sub-masses are known in simplest form as cells or, we would suggest as a more appropriate name, biocules. The science of the cell and cell-aggregates—plants and animals—is Biology. Here there seems to be a break with reference to the principle of aggregation of units, for the cell is not an aggregate of masses into a higher unit, as the mass is a higher unit than the molecule; but the advance to a higher form of matter may be regarded as due to a new combination of forces. Within the domain of life we find aggregates and aggregates of aggregates, both in the individual and in the collective body of individuals—in the individual known as organs and tissues, in the collective mass known as classes, orders, families, &c.

One animal, man, is distinguished from others by the possession of a unique power over nature arising from a unique intelligence. Man certainly forms a more distinct and marked stage of creation than any which has preceded in that he surveys the whole, but he is, besides an animal, a man, an aggregation of molecules and atoms. Man, although he is a complex of aggregates of aggregates, does not seem to be man by virtue of this law of aggregates, for in this he does not seem to differ radically from other animals. He is the animal in which psychical force, in distinction from physical force, comes to be a grand and dominant factor; hence the peculiar science of individual man is Psychology, while the study of the structure, functions, and growth of man's body is properly referred to Biology.

Sociology deals with the very difficult and complex subject of aggregates of human individuals. Human society is composed of societies, states, religious bodies, and the like; and these again of subordinate organisations, and so on down to the individual unit. This complexity is increased by the individual becoming a member of different societies. In all this wheel within wheel of societies the individual is the constant unit to which reference must be made, just as, in the investigation of molecules, reference must be continually made to their constituent atoms. The action of a society is the resultant of the actions of the individual members; thus, a change in the body politic, for instance, is the resultant of the changes of its component individuals acting and reacting on each other, just as a change in a molecule is the resultant of the changes of its component atoms. The problem of Sociology is then, as we take it, to trace changes in society to their immediate causes in the actions of constituent societies, and to their ultimate causes in the actions of individuals; and to discover the laws of these changes. Comparative Psychology and Sociology, as dealing with sub-human life, are subordinate to Psychology and Sociology.

But man rises, even according to Mr. Spencer, to an unknowable reality, or, as the theist believes, to a knowable personal God; but, according to both theist and pantheist, these aggregates of agregates find their final unity in God.

We place below a tabular outline of the sciences as we have treated them :—

Mathematics.	Chemistry.	Science of Atom.
	Molecular Physics.	Science of Molecule.
	Molar Physics.	Science of Mass.
	Biology.	Science of Aggregated Cell-Masses.
	Psychology.	Science of Individual Man.
	Sociology.	Science of Human Aggregates.
	Theology.	Science of God.

The order of aggregation plainly is: atoms into molecules, molecules into masses, cell-masses into plants, animals, and men, and these into societies. Nature is thus a combination of wheels within wheels. This classification presents the general order of the dependence of the sciences. If we wish, for instance, to study in Sociology the family, there will be necessarily presupposed a knowledge of the human individual as a psychical whole; and this presupposes a study of the human animal, and this of the cell, and this of masses, molecules, and atoms. Herein is a "hierarchy of the sciences". If this be the order of dependence of the sciences, it must also be the order of their completion, the higher sciences necessarily waiting on the lower. Again, it is also the order of increasing complexity, as has been exemplified throughout. It is also the order of increasing speciality and concreteness, in that it is a logical order of increasing intension and decreasing extension. A number of objects decrease, and number of attributes increase. It is also the order of recognised rank. As bearing on these points we quote the following passage from M. Th. Ribot's *Heredity*, p. 193 :—

> "The philosophers of the present century have shown (and the positivist school has performed a fair proportion of the work) that the sciences are not isolated systems of doctrine, each detached from each, but that there exists among them a hierarchical subordination, so that the more complex rest on the more simple, and presuppose them. The mathematical, physi-

cal, biological, moral, and social sciences represent so many phases of a continuous process, which advances from the simple to the complex. Social phenomena presuppose thought and sensation, these presuppose life, life presupposes physical and chemical conditions, physical and chemical facts presuppose mathematical conditions, time, space, and quantity, which are simply the most vague and general conditions of existence. In this series of an increasing complexity, and of a decreasing comprehensiveness, it would be folly to imagine that the superior sciences could exist before the inferior sciences were constituted. But quantitative determination exists only in mathematics, and to some extent in physics. It has not yet penetrated into biology. How, then, could it have attained to the moral and social sciences? It is, perhaps, doubtful if it will ever reach them."

As we understand M. Ribot, he would make Mathematics not concomitant, but constitutive, with the sciences; and this is also the opinion, if we mistake not, of W. K. Clifford.

This principle of aggregates, which we have sought to apply on à suggestive principle in the classification of the sciences, does, of course, assume ordinary scientific realism, and rests upon ordinary inductive interpretation. It is according to the ascending method in philosophy, the method of working up to man, rather than the descending method, that of working out and down from man, and it is subject to all the defects of that method; still the principle is, we believe, fertile and suggestive.

GOING BACK TO KANT.

By George J. Stokes.

In the present day a cry is frequently raised, that it is necessary to go back to Kant. The later German philosophers appear to many to have led into a visionary realm of fiction, a region of absolute illusionism. But from the idealistic extravagance of Fichte, Schelling, and Hegel, Kant is free. His world has a solid basis of *given* fact supporting it, and the reader feels that he is on *terra firma.* It is scarcely worth inquiring whether this conviction does not rest more on instinct than insight. A more important question is, whether it admits of justification. Can we retain the first principle of the Kantian philosophy and at the same time maintain the existence of a thing-in-itself distinct from and over against thought upon which thought in experience depends? The answer must be Yes and No. If we accept the fundamental thought of the Kantian Philosophy, the principle upon which he explains the possibility of *à priori* synthesis, *as that principle has been stated by Kant*, then it is perfectly true that the Critical Philosophy is no possible halting-place of thought and we must advance to the full development of the idealistic principle from which it starts. But if, on the other hand, we modify the fundamental thought of Kant by demonstrating the presence of the opposite principle in the very heart of that thought, then perhaps it will appear that the *Ding-an-sich* is not such an irrational element in the philosophy of Kant as his critics suppose, but springs from a deep-seated need lying hid in the very principle with which it apparently conflicts. The exact form in which this conception appears in Kant may have to be given up, but the truth which it expresses, the dependence of thought upon fact which determines rather than is determined by thought, will remain. To demonstrate that this is the case we cannot leave out of sight the work of subsequent speculation. What we propose to do is rather to show that idealistic speculation although it may not understand it carries Realism in its womb.

It is not enough to insist upon the necessity of going back to Kant. All depends upon the way in which we go back to him, and there are different ways of going back. If we glance for a moment at the last century, it is easy to conceive a similar feeling arising with regard to Locke, and Berkeley and Hume. Many who saw the external world disappear in the subjective idealism of Berkeley, and rational truth disappear in the sceptical phenomenalism of Hume, must have felt strongly that there was a necessity for going back to Locke. Locke must be studied again, they would say; the simple common sense of the *Essay on the Human Understanding* can lead to no such results; and accordingly a going back to Locke did take place—with great consequences for the history of philosophy. Kant went back to Locke, and studied again the problem of Locke, but he went back with a full and perfect consciousness of the subtle question Hume had asked, of the hidden problem of which his philosophy was the expression.

If a going back to Kant is to take place with fruitful results it must be made in the same way. Just as Kant went back to the problem of Locke and raised the question—Is it really true that all our knowledge not merely begins with experience but also arises out of experience? so it is necessary now to go back to the problem of Kant, and to inquire whether the presupposition under which Kant solved that problem is really true and is really necessary. The problem of Kant was the problem of synthesis and of synthesis *à priori*. How are synthetical judgments *à priori* possible? is the question prefixed to the *Critick of Pure Reason*. This is the determining point in his philosophy by which its scope is bounded. The necessity of *à priori* synthesis to knowledge, and the necessity of his system of Pure Reason to *à priori* synthesis, are the principles upon which he proceeds. Now, if it can be shown that the presupposition, under which alone Kant conceived it possible that *à priori* synthesis could exist, effectually precludes the possibility of the knowledge in question being either synthetical or *à priori*, and if the same can be shown to be true of Kant's successors, then the way will have been prepared towards such a modification of the Kantian principle and of their common presupposition as may render it really synthetical and really *à priori*.

Kant then tried to account for the possibility of *à priori* synthetical knowledge, and it remains to be shown that his method of doing so deprives such knowledge of its *à priori* and synthetical character. In the well-known passage in the Preface to the Second Edition of the *Critick of Pure Reason* Kant states the fundamental principle of his method. "It has hitherto been assumed," says he, "that our cognition must conform to the objects, but all attempts to extend our knowledge concerning them *à priori* by means of concepts have under this assumption failed. Let us try if we may not be more successful in the problems of metaphysics if we assume that the objects must conform to our cognition." In this passage is contained the germ not merely of Kant's philosophy but also of that of Fichte, Schelling and Hegel. Cognition can have *à priori* knowledge of the object because it is in itself to that extent the object which it knows. To that extent it makes the object and makes itself objective. But in the first place there cannot here be even cognition. If we confine ourselves carefully to the consideration merely of the *à priori* knowledge and the *à priori* object, it is evident that prior to the cognition there is no *à priori* object to be cognised since the cognition itself first constitutes that object, and a cognition which is the cognition of nothing is impossible, and therefore cannot exist to constitute an object of cognition. There is thus present in Kant's theory an element of pure tautology which, like every tautology, can have no beginning or end and simply vanishes in nothing. This tautology has, however, been faithfully preserved by Kant's successors. But even if we were to grant to Kant that the knowledge in question is knowledge, it certainly is not knowledge *à priori*. For if I only know that *à priori* of objects which I myself add to them in the act of knowing them, it is obvious that there is here no *à priori* knowledge whatever. Knowledge implies that it is a knowledge of something, and *à priori* knowledge implies that it is a knowledge of something prior to or independent of the experience of it. But independent of or apart from the experience in which it is given the object does not exist according to Kant, at least does not exist in regard to the elements in it which are the object of *à priori* knowledge. There is thus no object left in relation to which cognition may be *à priori*. At the very most we have only a cognition of a certain constitution of our faculties which enters into, conditions and forms phenomena. Cognition is thus supposed already to be at least in part the object which it was *à priori* to know. But the knowledge of this constitution is itself *à posteriori*. No matter how intellectual and truly *à priori* such knowledge may be in itself, Kant's theory of its origin renders it simply *à posteriori*, one may say mere matter of fact.

If *à priori* knowledge is really not recognised as that which it is by Kant, still less is the synthesis involved in such knowledge explained by him. That is, it is assumed from the outset, not explained in its origin. Kant's problem was, How can we know a synthetical truth *à priori* and independent of experience? Kant's answer is, that the synthesis lies in the knowing, and that in the process of experience we think it into nature. Very good: when we thus think it into nature in experience we can certainly extract it again from our experience of nature; but the whole of this process is analytical. The real question is, Whence comes the synthesis in the first instance as it is in the intellect? How can a thought go out from beyond itself to the thought of something more than itself? How is the synthetic movement of thought to be accounted for? Kant only brings forward the synthesis in thought to explain the synthesis in fact, but the synthesis in itself either in thought or fact is unexplained. The same remarks apply to Kant's criteria of *à priori* knowledge, Necessity and Universality. However universal and necessary the knowledge in question may be, we repeat, Kant's theory of its origin makes it to be neither the one nor the other. In the first place the knowledge is not necessary. The judgments in which it is expressed are derived from the forms, categories and other elements which constitute for Kant the machinery of intellect, but that the machinery is so constituted is simply matter of fact. The only necessity involved is that of identity, *viz.*, that the facts and relations involved in this machinery be permanent, *i.e.*, the necessity of themselves being as they are when met in experience. Similarly with universality. Kant's *à priori* truths are not really universal, for they are only true of objects of experience. They do not apply to noumena. And the reason is, because only in objects of experience can the forms of sense and notions of the understanding make themselves good. His universality is merely the recurrence of the same relation involved in our mental structure. In other words, an *à priori* truth is in Kant only the same individual fact or relation in all cases and is in no true sense universal.

It may be said that the nerve of these criticisms resides in what has been long ago observed and overcome, in the fact that Kant's system is individualistic, rests apparently upon empirical psychology, that its component parts seem to be taken by observation from experience, that he has not deduced his categories from the act of thought but gathered them empirically from the forms of the proposition, that in short he was unacquainted with that dialectical movement of thought in itself which was discovered by Fichte and perfected by Hegel. Be it so. Let us see then what this dialectical movement is and what it can accomplish; whether it can give us synthesis and synthesis *à priori*; whether it can account for truths which shall be both universal and necessary.

Now, in the first place, it is to be observed that the objection we have urged against Kant is valid also against the dialectical method. The dialectical process is not a process of cognition, nor indeed a possible process at all. There exists in it the same fatal tautology which we have already objected to as existing in Kant. The *à priori* object of cognition lies in the nature of cognition itself for Kant. Kant apparently avoids the tautology involved in a cognition which is thus act and object of the act in one, by postulating an *à posteriori* object in or along with the *à priori.* The *Ding-an-sich* acting upon our receptivity produces a sensuous manifold through which the faculty of knowledge is awakened into cognition and self-cognition, in that it cognises its own *à priori* nature in and with the objects of sense. The *Ding-an-sich* thus awakens cognition into exercise and differentiates its purely tautological relation to itself. But this mixing up of the matter of sense with the self-relation of cognition does not really avail Kant. The two ingredients are side by side like oil and water shaken together. And the peculiar weakness in the relation of cognition to itself as *à priori* element in the object is not in the least affected by the fact that the *à posteriori given* element is worked up through it. Is this difficulty removed in the dialectical process? Here the element of differentiation, the manifold, is not given from without, produced by the operation of a thing-in-itself, but is conceived as inherent in the nature of thought itself. But this does not alter the matter one whit, so long as the method of mechanical mixture is retained. And this is what the dialectical method does retain. It shows that one notion is not without the other, that it strikes round into its opposite, &c.; but in all this an intelligent mediation is altogether wanting. The validity of any notion consists in being the notion of something distinct from itself. To convert this intelligible relation, which lies in the nature *of* any and every thought, into a series of mechanical transformations with opposite thoughts, is what the dialectic of Hegel accomplishes.

In Hegel there are two things confounded, run together into one, which should be strictly held apart, *viz.*, the movement or synthesis in thought and the movement or synthesis in the object of thought. With all his struggles after a more living unity he never freed himself from the prejudice of the *Identitätsphilosophie* that the agreement between these two sides must be one of Identity. But seeing that the element of Difference was just as essentially present as that of Identity, he conceived the identity in question as the identity of a movement capable of giving birth to this as well as all other differences. But a movement which is identical through the differences is just as little capable of giving birth to the differences through which it is, as is the most rigid and motionless identity. Therefore, even if we concede to Hegel that his method gives an adequate representation of the synthetical movement of thought (and it lies in the very nature of thought to involve synthesis), it does not by any means follow that the movement itself is thereby accounted for. On the contrary, by trying to represent this movement as *self-movement* he falls back into the analytic groove out of which Kant professed to bring Philosophy. That Kant himself did not succeed in what he aimed at, it was comparatively easy to show. He assumed beforehand his categories and their syntheses as existing ready to hand in the constitution of the understanding and waiting only for sensation to awaken them into activity, as plainly and openly as did ever the dogmatic philosophers the nature and properties of things-in-themselves, when once sensation had made us aware of their existence. The only difference is that the synthesis which the dogmatists assumed as existing without, Kant assumed as existing within; and the influence exerted on experience is regarded in the one case as coming from an external, in the other from an internal source. Synthesis, as synthetical movement of thought, can here be scarcely said to exist. But in Hegel it does exist, and correctly enough too, as thinking that through which itself is. The question is—Is that through which the movement of thought is, something distinct from this movement and given independently of it, or is it merely the result of the movement itself?

According to Hegel the forward movement of thought in philosophy is quite as much a going backwards, a return into the ground from which that wherewith the beginning was made depends, and by which it is in fact produced. This statement of Hegel arises from his confusion of the order of knowledge with the order of reality and his failure to perceive that the former is only through the latter as distinct from itself. But making allowance for this we may admit a certain correctness in the Hegelian method. The principle of the method points out not what that which we think about or seek to discover must be like, but what our thinking about it must be like in order to be science. It points out the relation in which our completed knowledge must stand to the knowledge with which we began. But this relation does not exist simply through itself. It exists only through a relation of objectivity which it implicates as the condition of its own possibility as knowledge. It is because the movement of thought thus for its own existence requires that to be through which it itself is and in the cognition of which it consists, that it has been represented as the condition and source of the objective being which it cognises, and in ontology or metaphysics as the creator of the very things which it is said to be the instrument afterwards of investigating. But the movement of thought is not in itself the source of its own movement. Thought has its being as much out of as within itself, and to suppose that it is otherwise is the great defect of the dialectical method. To Hegel the movement of the "Begriff" is the movement "der Sache selbst". But that is just what it is not, though it is a movement which is only through a correlative objective relativity. The movement of thought is always through an objective relation which it understands and in understanding which it is. To confound this objective relation with the movement of thought itself is the rock on which Hegel splits.

These remarks are sufficient to indicate the point of view from which we would wish to raise again the problem of Kant: How are synthetical judgments *à priori* possible? Is it really true that it is possible to explain synthesis *à priori* only if we assume that the object must conform to our cognition, or is created by thought, whether that thought be itself subjective, objective, or absolute? Now, it is the result of our foregoing criticism that the synthesis in thought has itself meaning only as the thinking of an objective synthesis, a synthesis in the object. It cannot therefore itself create that synthesis upon which its own essence and possibility depend. On the other hand, it is impossible to accept any psychological genesis of the intellectual synthesis, the synthesis in thought, from the objective synthesis, not merely because such genesis must always presuppose what it seeks to explain, but also because the objective synthesis has reality and meaning for intelligence, is in fact anything whatever only in relation to the correlative thought of itself by which its own intelligible being is conditioned. These two sides are thus co-ordinate. How then is their harmony possible? Now, if these two sides are conceived as independent, existing separately from each other, then their harmony must be pre-established. If we conceive them as not independent, but as having their being in each other, if we conceive thought and thing as springing into existence in immediate and mediate relation and correlation with each other, then the need for such a pre-established harmony ceases. The harmony is not artificial but natural and immanent.

Towards such a modification of the Kantian principle much has been done to clear the way. In this respect to Materialism and Idealism a debt of gratitude is equally due. The successors of Kant in Germany have set the Kantian philosophy free from the trammels of mere subjective Idealism, and have reduced its principle to its finest expression. The study of their systems is mainly useful to give us the clearest consciousness of the extent of the problem which Kant attempted to solve within the narrow limits of the individual mind. Those great half-truths that there is Reason in the world, that the world is essentially Thought, have an important meaning. It is true if we look these statements in the face they are downright nonsense. Reason is not in the world and also in consciousness, just like a stick here in the water and there out of it. What is in the world is not Reason itself but that through which Reason is Reason, an order of fact correlative to the inner order of thought. In like manner it is true that the world is thought, and the things in it thoughts, but these thoughts are the thoughts of something more than thoughts; they are the thoughts of realities, and the essence of things is not by any means exhausted or even affected by the thoughts of them.

Nevertheless, we ought by no means to underestimate the value of the contributions of Fichte, Schelling, and Hegel. It is probable that in Kant there is by far the greatest supply of material for philosophical thought, that his system is the most intrinsically valuable, but the general plan and extent of the building can only be learned from the former. And in this sense, and from this point of view we ought to go back to Kant. Kant has indeed been lately studied amongst us as introductory to Hegel. But if there is truth in what we have urged in the foregoing it would be better to reverse this procedure and to study Fichte, Schelling and Hegel, not in order to accept their conclusions as final results of philosophical speculation, but in order to turn over once more all that is implied in Kant's method of answering the question—How are *à priori* synthetical judgments possible?

ABSOLUTISM AND EMPIRICISM.

By Prof. WILLIAM JAMES.

No seeker of truth can fail to rejoice at the *terre-à-terre* sort of discussion of the issues between Empiricism and Transcendentalism (or, as the champions of the latter would probably prefer to say, between Irrationalism and Rationalism) that seems to have begun in MIND. It would seem as if, over concrete examples like Mr. J. S. Haldane's, both parties ought inevitably to come to a better understanding. As a reader with a strong bias towards Irrationalism, I have studied his article in No. XXXIII. with the liveliest admiration of its temper and its painstaking effort to be clear. But the cases discussed failed to satisfy me, and I was at first tempted to write a Note animadverting upon them in detail. The growth of the limb, the sea's contour, the vicarious functioning of the nerve-centre, the digitalis curing the heart, are unfortunately *not* cases where we can *see* any *through-and-through* conditioning of the parts by the whole. They are all cases of reciprocity where subjects, supposed independently to exist, acquire certain attributes through their relations to other subjects. That they also *exist* through similar relations is only an ideal supposition, not verified to our understanding in these or any other concrete cases whatsoever.

If, however, one were to urge this solemnly, Mr. Haldane's friends could easily reply that he only gave us such examples on account of the hardness of our hearts. He knew full well their imperfection, but he hoped that to those who would not spontaneously ascend to the Notion of the Totality, these cases might prove a spur and suggest and symbolise something better than themselves. No particular case that can be brought forward is a real concrete. They are all abstractions from the Whole, and of course the "through-and-through" character cannot be found in them. Each of them still contains among its elements what we call *things*, grammatical subjects, forming a sort of residual *caput mortuum* of Existence after all the relations that figure in the examples, have been told off. On this "existence," thinks popular philosophy, things may live on, like the winter bears on their own fat, never entering relations at all or, if entering them, entering an entirely different set of them from those treated of in Mr. Haldane's examples. Thus *if* the digitalis were to weaken instead of strengthening the heart, and to produce death (as sometimes happens), it would determine itself, through determining the organism, to the function of "kill" instead of that of "cure". The function and relation seem adventitious, depending on what kind of a heart the digitalis gets hold of, the digitalis and the heart being facts external and, so to speak, accidental to each other. But this popular view, Mr. Haldane's friends will continue, is an illusion. What seems to us the "existence" of digitalis and heart outside of the relations of killing or curing, is but a function in a wider system of relations, of which, *pro hac vice*, we take no account. The larger system determines the *existence* just as absolutely as the system "kill," or the system "cure," determined the *function* of the digitalis. Ascend to the absolute system, instead of biding with these relative and partial ones, and you shall see that the law of through-and-throughness must and does obtain.

Of course, this argument is entirely reasonable, and debars us completely from chopping logic about the concrete examples Mr. Haldane has chosen. It is not his fault if his categories are so fine an instrument that nothing but the sum total of things can be taken to show us the manner of their use. It is simply our misfortune that he has not the sum total of things to show it by. Let us fall back from all concrete attempts and see what we can do with his notion of through-and-throughness, avowedly taken *in abstracto*. In abstract systems the "through-and-through" Ideal is realised on every hand. In any system, as such, the members are only *members* in the system. Abolish the system and you abolish its members, for you have conceived them through no other property than the abstract one of membership. Neither rightness nor leftness, except through bi-laterality. Neither mortgager nor mortgagee, except through mortgage. The logic of all these cases is this:—*If* A, then B; but *if* B, then A: wherefore *if* either, Both; and if not Both, Nothing.

It costs nothing, not even a mental effort, to admit that the absolute totality of things *may* be organised exactly after the pattern of one of these "through-and-through" abstractions. In fact, it is the pleasantest and freest of mental movements. Husband makes, and is made by, wife, through marriage; one makes other, by being itself other; everything self-created through its opposite—you go round like a squirrel in a cage. But if you stop and reflect upon what you are about, you lay bare the exact point at issue between common-sense and the "through-and-through" school.

What, in fact, is the logic of these abstract systems? It is, as we said above: If any Member, then the Whole System; if not the Whole System, then Nothing. But how can Logic possibly do anything more with these two hypotheses than combine them into the single disjunctive proposition—"Either this Whole System, just as it stands, or Nothing at all". Is not that disjunction the ultimate word of Logic in the matter, and can any disjunction, as such, resolve *itself*? It may be that Mr. Haldane sees how one horn, the concept of the Whole System, carries real existence with it. But if he has been as unsuccessful as I in assimilating the Hegelian re-editings of the Anselmian proof, he will have to say that though Logic may determine *what* the system must be, *if* it is, something else than Logic must tell us *that* it is. Mr. Haldane in this case would probably consciously, or unconsciously, make an appeal to Fact: the disjunction *is* decided, since nobody can dispute that now, as a matter of fact, *something*, and not nothing, *is*. We must *therefore*, he would probably say, go on to admit the Whole System in the desiderated sense. Is not then the validity of the Anselmian proof the nucleus of the whole question between Logic and Fact? Ought not the efforts of Mr. Haldane and his friends to be principally devoted to its elucidation? Is it not the real door of separation between Empiricism and Rationalism? And if the Rationalists leave that door for a moment off its hinges, can any power keep that abstract, opaque, unmediated, external, irrational, and irresponsible monster, known to the vulgar as bare Fact, from getting in and contaminating the whole sanctuary with his presence? Can anything prevent Faust from changing "Am Anfang war das Wort" into "Am Anfang war die That"?

Nothing in earth or heaven. Only the Anselmian proof can keep Fact out of philosophy. The question, "Shall Fact be recognised as an ultimate principle?" is the whole issue between the Rationalists and the Empiricism of vulgar thought.

Of course, if so recognised, Fact sets a limit to the "through-and-through" character of the world's rationality. That rationality might then mediate between all the members of our conception of the world, but not between the conception itself and reality. Reality would have to be given, not by Reason, but by Fact. Fact holds out blankly, brutally and blindly, against that universal deliquescence of everything into logical relations which the Absolutist Logic demands, and it is the only thing that does hold out. Hence the ire of the Absolutist Logic—hence its non-recognition, its 'cutting' of Fact.

The reasons it gives for the 'cutting' are that Fact is speechless, a mere word for the negation of thought, a vacuous unknowability, a dog-in-the-manger, in truth, which, having no rights of its own, can find nothing else to do than to keep its betters out of theirs.

There are two points involved here: first the claim that certain things have rights that are absolute, ubiquitous and all pervasive, and in regard to which nothing else can possibly exist in its *own* right; and second that anything that denies *this* assertion is *pure* negativity with no positive context whatsoever.

Take the latter point first. Is it true that what is negative in one way is thereby convicted of incapacity to be positive in any other way? The word "Fact" is like the word "Accident," like the word "Absolute" itself. They all have their negative connotation. In truth their whole connotation is negative and relative. All it says is that, whatever the thing may be that is denoted by the words, *other* things do not control it. Where fact, where accident is, they must be silent, it alone can speak. But that does not prevent its speaking as loudly as you please, in its own tongue. It may have an inward life, self-transparent and active in the maximum degree. An indeterminate future volition on my part, for example, would be a strict accident as far as my present self is concerned. But that could not prevent it, *in the moment in which it occurred*, from being possibly the most intensely living and luminous experience I ever had. Its quality of being a brute fact *ab extra* says nothing whatever as to its inwardness. It simply says *to outsiders*: 'Hands off!'

And this brings us back to the first point of the Absolutist indictment of Fact. Is that point really anything more than a fantastic dislike to letting *anything* say 'Hands off'? What else explains the contempt the Absolutist authors exhibit for a freedom defined simply on its "negative" side, as freedom "from," &c.? What else prompts them to deride such freedom? But, dislike for dislike, who shall decide? Why is not their dislike at having me "from" them, entirely on a par with mine at having them "through" me?

I know very well that in talking of dislikes to those who never mention them, I am doing a very coarse thing, and making a sort of intellectual Orson of myself. But, for the life of me, I cannot help it, because I feel sure that likes and dislikes *must* be among the ultimate factors of their philosophy as well as of mine. Would they but admit it! How sweetly we then could hold converse together! There is *something* finite about us both, as we now stand. We do not know the Absolute Whole *yet*. *Part* of it is still negative to us. Among the *whats* of it still stalks a mob of opaque *thats*, without which we cannot think. But just as I admit that this is all possibly provisional, that even the Anselmian proof may come out all right, and creation *may* be a rational system through-and-through, why might they not also admit that it may all be otherwise, and that the shadow, the opacity, the negativity, the "from"-ness, the plurality that is ultimate, *may* never be wholly driven from the scene. We should both then be avowedly making hypotheses, playing with Ideals. Ah! Why is the notion of hypothesis so abhorrent to the Hegelian mind?

And once down on our common level of hypothesis, we might then admit scepticism, since the Whole is not yet revealed, to be the soundest *logical* position. But since we are in the main not sceptics, we might go on and frankly confess to each other the motives for our several faiths. I frankly confess mine—I cannot but think that at bottom they are of an æsthetic and not of a logical sort. The "through-and-through" universe seems to suffocate me with its infallible impeccable all-pervasiveness. Its necessity, with no possibilities; its relations, with no subjects, make me feel as if I had entered into a contract with no reserved rights, or rather as if I had to live in a large seaside boarding-house with no private bed-room in which I might take refuge from the society of the place. I am distinctly aware, moreover, that the old quarrel of sinner and pharisee has something to do with the matter. Certainly, to my personal knowledge, all Hegelians are not prigs, but I somehow feel as if all prigs ought to end, if developed, by becoming Hegelians. There is a story of two clergymen asked by mistake to conduct the same funeral. One came first and had got no farther than "I am the Resurrection and the Life," when the other entered. "*I* am the Resurrection and the Life," cried the latter. The "through-and-through" philosophy, as it actually exists, reminds many of us of that clergyman. It seems too buttoned-up and white-chokered and clean-shaven a thing to speak for the vast slow-breathing unconscious Kosmos with its dread abysses and its unknown tides. The "freedom" *we* want to see there is not the freedom, with a string tied to its leg and warranted not to fly away, of that philosophy. "Let it fly away," we say, "from *us*! What then?"

Again I know I am exhibiting my mental grossness. But again, *Ich kann nicht anders*. I show my feelings; why *will* they not show theirs? I know they *have* a personal feeling about the through-and-through universe, which is entirely different from mine, and which I should very likely be much the better for gaining if they would only show me how. Their persistence in telling me that feeling has nothing to do with the question, that it is a pure matter of absolute reason, keeps me for ever out of the pale. Still seeing a *that* in things which Logic does not expel, the most I can do is to *aspire* to the expulsion. At present I do not even aspire. Aspiration is a feeling. What can kindle feeling but the example of feeling? And if the Hegelians *will* refuse to set an example, what can they expect the rest of us to do? To speak more seriously, the one *fundamental* quarrel Empiricism has with Absolutism is over this repudiation by Absolutism of the personal and æsthetic factor in the construction of philosophy. That we all of us have feelings, Empiricism feels quite sure. That they may be as prophetic and anticipatory of truth as anything else we have, and some of them more so than others, cannot possibly be denied. But what hope is there of squaring and settling opinions unless Absolutism will hold parley on this common ground; and will admit that all philosophies are hypotheses, to which all our faculties, emotional as well as logical, help us, and the truest of which will at the final integration of things be found in possession of the men whose faculties on the whole had the best divining power?

CAN A MAN SIN AGAINST KNOWLEDGE?

By F. H. Bradley.

There is an old paradox which at some time we must all have encountered. That no one sins willingly, and that vice is ignorance, must at some time have been offered to us all as gospel. And most of us, I presume, have long ago concluded that a truth has here been pressed into a falsehood. We naturally reflect that, as for the artist beauty rules the universe and is the dominant reality, so for the reasoning philosopher reason is the king and master both of the world and of the soul. And we have persuaded ourselves that such prepossessions lead to conflict with fact. For not only may the ruler at times be absent, but even if he is present, yet appetite defies him, and, with no cloak of ignorance, sins wilfully and knowingly in the master's sight.

I cannot think that our persuasion is false. For me, too, the old gospel has joined the museum of one-sided growths, and, with "the practical reason," has been placed on the shelf of interesting illusions. I would not seek to revive them; but, on the contrary, my object is to remove a hindrance to their well-earned repose. There is a psychological doubt which remains unsatisfied, and serves as the foundation for a serious mistake. Our experiences seem discrepant. For myself, and in my own mind, I am able to verify the presence of wrong-doing in the face of and despite the voice of conscience. I feel sure of this fact, but others are not certain, while others again within their experience are certain of the opposite. They assure me that never until conscience has slumbered, never until for the moment they have forgotten the quality of their act, are they able to give way to an immoral impulse.

It is not likely that any of us are quite mistaken about the fact. When an observer tells us that with him bad action never co-exists with present knowledge, that an actual consciousness of its immorality is incompatible with the victory of any desire, we may be sure that he is not wholly in error. He has observed a fact, but observed it wrongly; and our task is to show that his mistake has come from a view that is partial, and an interpretation that is erroneous.

Perhaps the most convenient way of pointing out the root of the error will be for me to invent a defence, which will show what I think is the source of delusion. And if I dwell upon truths which we all understand, I may excuse myself by observing that, if all of us understand them, nearly all of us make mistakes because we disregard them.

What defence can we find for the doctrine that knowledge excludes wrong action? We are not forced to invoke the obsolete primacy of the "practical reason": we may move to the ground of a saner psychology and may rest upon fact. For we may urge, 'No one knows an act to be wrong unless he has an idea of the wrongness. But if this be admitted, observe what follows: the *idea* of wrong implies the *feeling* of wrong. And this consequence is certain; for our ideas, we know, are representative signs, and to perceive the signification without the presence of the whole sign is quite impossible. Thus when you have in your mind the idea of a horse or a cow or a bad action, you possess a present image, part of which you neglect, and part of which you take as your meaning, and use as the idea of something not present but represented. But now what is it that could represent a horse but something present in the form of a horse-image? And what is it again that could be the idea of a moral or of an immoral act, unless it were something present to the mind in one of these qualities? But to be present to the mind as moral or immoral implies a feeling of right or wrong. What represents, and is used as the idea of the act, must therefore imply a corresponding emotional element. If so, however, the conclusion seems proved; for since what represents right or wrong is emotional, it therefore, because it is emotional, will work. It will not indeed work as the idea of something else, but it will work as the actual present state. It will be the badness that is *felt*, and not the badness that is *thought*, which will have power to move us. In other words, it is the whole sign that is active, and not the mere signification. But this will make no difference. Since you cannot represent the wrong that is signified without the present image which is felt as wrong, the knowledge of vice must thus be *per accidens* a dislike to viciousness, and this felt aversion, psychologically implied in all ideas of immorality, will fetter the will, until, with the knowledge, the feeling disappears.

'And we may support this defence by an appeal to the general theory of motives. A motive, if that means the *object* of our desire or aversion, must be the idea of something pleasant or painful. And thus (I have argued in my *Ethical Studies*), if the motive is the end and is so an idea, then what moves is never the motive as such. But on the other hand the motive will move *per accidens*. For an idea implies a representative state of mind, and that state of mind must have present existence as a psychical phenomenon.

The state which represents something pleasant or painful must furthermore itself *be* pleasant or painful. The idea will thus indirectly imply a feeling, and in this indirect way a motive will move.

'And by this we may not only support our paradox, but may prop up, besides, another doctrine. To suppose that what promises to be most pleasant must always move us, we know is a mistake, because the promised is an idea, while the mover is feeling. But, since the future prospect of the most pleasant could not be represented to us in idea, unless there were a feeling which served as the sign, hence, through this feeling and *per accidens*, the promise will move, and, *per accidens* again, the promise of the most pleasant will move us the most.'

Such is the defence which we may place in the mouth of our failing paradox, and this defence, though erroneous, still is based on a solid foundation. The reader may refuse to follow us through these psychological subtleties, but I am sure that any one who is not at home in them is threatened by errors from every side.

The defence we have put forward amounts to this : an idea not only represents something else beside itself, but is in itself an existing phenomenon, and in this capacity does psychological work. And hence the idea of immorality will be felt as an actual painful fact, and so will repel ; while, again, the idea of the greatest pleasure will be felt as most pleasant, and so must attract.

The mistake that is made here is tolerably simple. It is true that the idea of a pleasure or a wrong act must imply a feeling, and that this feeling will do *some* work. But it is not true that the feeling need determine the will to avoid or pursue the object of the idea. This is perfectly obvious, and our experience of the contest of discrepant impulses puts it beyond doubt. What is felt pleasant or painful will determine us or not, according as it stands to our whole state of desire. We need ask no hard questions about the nature of desire, but may state the matter thus. Admitting that pleasure and pain are what move us, it is still not mere pleasure nor again mere pain that determines the movement. It is the greatest felt pleasure, or the balance of pleasure or pain, that will succeed. And hence obviously, when we ask if a feeling will *work*, the question is a question of that feeling's intensity, and a question of its *comparative* intensity.

We shall agree, I hope, that the above is obvious ; but it gives us a key to the puzzle before us. When an observer maintains that he cannot act against a wakeful conscience, what happens in his mind, I think, is this. He has fixed his attention upon the wrongful quality of the act, and that fixing of the attention has important results. In the first place it is exclusive ; that is, it keeps out *other* ideas, and so removes the conflicting influence of *their* feelings. In the second place (I do not ask how these two functions are connected) the attention strengthens ; that is, through attention the idea becomes clearer, and the images and feelings involved in that idea become also stronger; so that to resist such an isolated and heightened prompting is now impossible. Hence, if our observer were to say, 'When I realise with vividness the immorality of my act, I cannot, while I do so, go on to commit it,' I think that his statement would be quite correct. It would be in accordance both with sound psychology and with the evidence of fact.

But such a modified statement would fail to carry the required conclusion. It would not show that, when my conscience is aroused, I am unable then to oppose it and defeat it. For, in the first place, when we have before us the idea of a bad act, our attention need not be concentrated upon this one element of our whole state of mind. On the contrary, we may try to observe indifferently all the discordant factors of our complex condition; and, if we do this, our idea of the immorality of the act will not gain any *relative* increase of strength. And again, and in the second place, there is a very great difference between ideas. Some are highly *symbolic*, and in this case their effect on the imagination and feelings is comparatively weak.

I will try to explain this second point. Suppose, for example, I have thought of something pleasant, and then am asked to think of something *twice* as pleasant. I am able to perform this in more ways than one. I may retain the pleasant image which I already have, and which has furnished me with my idea of the represented pleasure; I may increase the pleasantness of that pleasant image, and may use this increase as a sign of something that is twice as pleasant. In this case we might roughly and inaccurately say that what *represents* twice the pleasure is itself actually felt to be doubly pleasant. But I may take another course: I need not try to double my pleasant image, but may qualify it from outside by another and a foreign image of quantity. That is, I may call up an image of something *not* pleasant, which is increased twofold, and I may use this as a sign to stand for *twice*; and adding this from the outside to my idea of something pleasant, I may so indirectly acquire the idea of what is doubly pleasant. In this case I do not say that the effect on the feelings and on the imagination will vanish wholly, but I am sure we shall agree that it will be much diminished.

The point is so important that I perhaps may be allowed another illustration. I have the image of a horse before my mind, and I want to think of a hundred horses. Now, to do this, I need not try to have before me a hundred horse-images, but may apply the idea of a hundred from elsewhere. No doubt, this idea of a hundred times must rest upon *some* present image, but there is no sort of reason why it should rest on the obscure image of a hundred horses. In the same way, if I desire to think of a horse one hundred times as large as the first, I need not struggle to magnify my present horse-image. I may employ some *other* obscure image, take from that the idea of hundredfoldness, and employ this to modify my idea of a horse.

And we may strengthen our position by a familiar experience. We all know that as a rule it is impossible to recall either vivid pleasures or vivid pains. But it would be wrong to say that I have not the knowledge that my pleasure or my pain was very great. I do know this; but I know it discursively and by the intellectual addition of the idea of intensity to my idea of the feeling. And hence the effect on the imagination and emotions may be very weak; it may serve in temptation but to sour the pleasure without preventing the sin. In a corrupted state, where the passions are enfeebled and where cruel experience has opened the eyes without changing the heart, we may find the condition described by Lamb, "the sin and the suffering co-instantaneous, or the latter forerunning the former, remorse preceding action".

The result of this is that the idea of a greater pleasure need not in itself be felt as more pleasant, nor the idea of a greater pain as more painful. The increase of feeling, if it takes place at all, need take place in no proportion to the increase thought of. This again must be true of the idea of wrong-doing. I may qualify my idea of a certain act by the addition of immorality, but I may transfer that addition from another and wholly separate image. In this case my knowledge that an act is bad does not rest on an image of the act as bad. It consists primarily in the intellectual use of a symbol, and the secondary effect on the imagination and the feelings may be almost inappreciable.

Our ethical paradox, if true at all, will be true only of a mind which is confined to intuition; and such a mind is not known to exist, except at an *early* stage of evolution. But any mind which can abstract and reflect and reason discursively will be able to think of an act as being wrong, and yet the feeling of that act's wrongness may not pass beyond an ineffective minimum. It is only where the attention is concentred upon the quality of the act, and even then it is only where the act in its wrongful quality is present as a vivid imagination, that the conscience will be irresistible. It is not knowledge, it is a relative degree of feeling excited by a certain kind of knowledge, that coerces the appetite.

This, I think, will furnish us with a partial justification of our paradox, and it also may serve as its final refutation.

VII.—CRITICAL NOTICES.

Mental Evolution in Animals. By George John Romanes, M.A., LL.D., F.R.S., Zoological Secretary of the Linnean Society. With a Posthumous Essay on Instinct by Charles Darwin. London: Kegan Paul, Trench, 1883. Pp. 411.

This book is probably the first attempt to treat the psychology of animals systematically and as a whole. It is based on the theory of evolution, without which, indeed, such an investigation would scarcely have been possible. To the materials contained in the author's previous work on *Animal Intelligence* much has been added in the present volume. In the chapters on Instinct especially, new accounts are to be found of observations made or collected by the author. The chapter on "The Structure and Functions of Nerve-Tissue" contains an account of the results of his important researches on the nervous systems of the Medusæ. These researches seem to him to confirm Mr. Spencer's theory of the origin of nerve-fibres but not of nerve-cells, which he infers to be not, as Mr. Spencer argues, the result of the confluence of fibres, but of the further specialisation of cells that have already become specialised as epithelial or epidermal cells. In the chapter on "Sensation" he gives the evidences of the view now generally taken by biologists that the organs of special sense arise as modified parts of the epidermis. He agrees with Mr. Spencer in concluding that the senses are all "differentiations of the general sense of touch".

Some of the facts that are found at the beginning of the chapter on Sensation point to the conclusion, which was also suggested by the facts given in the earlier chapters of *Animal Intelligence*, but which is nowhere drawn by the author, that the lowest animals, although they have no organs of special sense, but only, so far as can be made out, a general sensibility resident in their protoplasm, have the beginnings not only of sensibility but also of will and intelligence. The only difficulty of admitting this seems to be that animals higher in the zoological scale would have to be placed lower in the psychological scale. And this difficulty is apparent rather than real. For in all morphological classifications parasitic animals and plants form anomalous groups. Now animals that have lost the plasticity characteristic of Protozoa, and whose nervous systems are occupied chiefly in reflex actions, might be regarded as psychologically degenerate, just as parasites and some non-parasitic animals are degenerate morphologically.

The definition of Instinct given in *Animal Intelligence* is repeated in the present work. Instinct is defined as "reflex action into which there is imported the element of consciousness" (p. 159).

This is now explained to mean that, while "a stimulus which evokes a reflex action is at most a sensation," on the other hand "a stimulus which evokes an instinctive action is a perception". It might be expected from this that Dr. Romanes would agree with Lewes in speaking of unconscious sensations. But he refers to Lewes's definition of a sensation, as simply the reaction of a sense-organ, only to reject it, and goes on to say that "the difficulty of determining whether or not this or that particular low form of life has the beginnings of Sensation is one and the same as the question whether it has the beginnings of Consciousness" (p. 79). According to this statement, wherever there is sensation there is consciousness; and from this it seems to follow that some reflex actions—that is to say, those which are excited by sensations—are accompanied by consciousness. But, according to the definition, these are instincts. Instinct, therefore, by the definition (as it is now interpreted), seems indistinguishable from reflex action.

The constructive and psychological part of the present volume is less successful than the part that serves as a supplement to *Animal Intelligence*. Apart from all differences of opinion on purely philosophical questions,—which the author desires to avoid,—the treatment of the fundamental question of the relation of Mind and Body can hardly be described as satisfactory. It is quite possible, without implying any metaphysical doctrine, to regard mental and physical changes always as concomitants, never as causes and effects of one another. In some places Dr. Romanes seems to be unwilling to take up this position for fear of committing himself to some definite system of metaphysics. In the following passage his words imply that its evidence is that of a directly observed fact.

> "We know by immediate or subjective analysis that consciousness only occurs when a nerve-centre is engaged in such a focussing of vivid or comparatively unusual stimuli as have been described, and when as a preliminary to this focussing or act of discriminative adjustment there arises in the nerve-centre a comparative turmoil of stimuli coursing in more or less unaccustomed directions, and therefore giving rise to a comparative delay in the occurrence of the eventual response. But we are totally in the dark as to the causal connexion, if any, between such a state of turmoil in the ganglion and the occurrence of consciousness" (p. 75).

Notwithstanding the statement in the last sentence, Dr. Romanes sometimes appears to think that the occurrence of consciousness is somehow explained if it can be shown to arise when there is an increase in the time taken up by the transmission of a stimulus. "Consciousness," he says, "is but an adjunct which arises when the physical processes—owing to infrequency of repetition, complexity of operation, or other causes—involve what I have before called ganglionic friction" (p. 113). When the nerve-centre has become "a seat of comparative turmoil among molecular forces" it "begins to become conscious of its own working" (p. 319). Not only is this attempt made to explain consciousness from the objective side, but an attempt is also made to show how mental states may become factors of physical changes.

> "Possibly, however—and as a mere matter of speculation, the possibility is worth stating—in whatever way the inconceivable connexion between Body and Mind came to be established, the primary cause of its establishment, or of the dawn of subjectivity, may have been this very need of inducing organisms to avoid the deleterious, and to seek the beneficial; the *raison d'être* of Consciousness may have been that of supplying the condition to the feeling of Pleasure and Pain. Be this as it may, however, it seems certain, as a matter of observable fact, that the association of Pleasure and Pain with organic states and processes which are respectively beneficial and deleterious to the organism, is the most important function of Consciousness in the scheme of Evolution" (pp. 110-111).

It is difficult to infer anything from this passage except that the objective factors of the process of evolution have the power of introducing subjective factors among themselves, which in turn act upon the objective factors and change the course of events. And in other places purely physical processes are spoken of as "the raw material of consciousness". Perhaps the inconsistency in all this is only verbal; and it must be admitted that in many passages the expressions as to the relation of Mind and Body are not open to objection. But the opposition between subject and object might have been stated with more clearness and maintained with more consistency.

The selection of "the criterion of mind" is the starting-point of the investigation. The evidence of Choice having been taken as a criterion by which "the upper limit of non-mental action" may be determined, it is decided that "the physiological aspect of choice" is "the power of discriminating between stimuli, irrespective of their relative mechanical intensities". This power and "the complementary power of adaptive response" are "the root-principles of mind". There is a correlation such as might be expected *a priori* "between muscular and mental evolution—or, more generally, between power of discrimination and variety of adaptive movements".

> "Thus, if we again take mental operations as indices whereby to study the more refined working of nervous centres, as we take muscular movements to be so many indices, 'writ large,' of the less refined working of such centres, we again find forced upon us the truth that the method of nervous evolution has everywhere been uniform; it has everywhere consisted in a progressive development of the power of discriminating between stimuli, combined with the complementary power of adaptive response" (p. 62).

The development of mind is figured in the diagram placed at the beginning of the book by a tree-like structure having its stem assigned to Will, and a system of branches on each side to Emotion and Intellect respectively. 'Volition' is represented as continuous with 'Reflex Action,' which is itself continuous with

'Neurility'. 'Neurility' is formed by the confluence of 'Discrimination' and 'Conductility,' which have their root in 'Excitability'. On the side of Intellect, from a branch representing 'Sensation' (which springs from the stem) a branch representing 'Perception' is given off; from 'Perception,' 'Imagination' is represented as originating; from 'Imagination,' 'Abstraction'. On the side of Emotion, a branch representing 'Preservation of Self' and 'of Species' springs from the stem and gives off a branch the lower part of which represents the beginning of 'Social Emotion'. The names of groups of animals are placed in a column that stands for 'the Psychological Scale'. Opposite these names in two other columns we find the 'Products of Intellectual Development' and 'Products of Emotional Development' characteristic of each group of animals. The levels drawn across the diagram at equal intervals are intended to represent degrees of elaboration of faculty.

The author points out the sufficiently obvious defects of such a diagram—that it does not adequately express the transitions that there are in nature from one stage of intelligence to another, and that the division of mind into "faculties" is essentially artificial. But there is another defect which he has not pointed out. The development of mind is represented as proceeding only in a single line. For the branching structure can only represent the division of a single mind at each of its stages into faculties, not the divergence of different types of mind. Nothing is said as to the possibility that at the same level of general intelligence there may be essentially different mental types,—dependent, for example, on different degrees of acuteness of the senses, and different ratios of their degrees of acuteness to one another. For anything the diagram tells us—and the same thing may be said of the whole book—there might be no differences between minds except differences of position in serial order. But if minds have been evolved, we should expect them to fall into groups having the peculiarities pointed out by Darwin as characteristic of all groups that have originated by evolution. And the evolution of existing types of animal intelligence, as well as of existing types of animal organisation, ought to be shown by a genealogical tree, not by a structure that cannot represent the growth of more than one type, either of mind or of organisation. If the construction of such a genealogical tree is at present impossible, it might at least have been pointed to as the ideal of a science of comparative psychology.

The definitions of the "faculties" are not quite so clear as is to be desired. This is perhaps comparatively unimportant; for it might be maintained that the distinctions expressed by the terms Sensation, Perception, Imagination, Abstraction, &c., have to such an extent become part of common thought that they may be applied with at least approximate accuracy by a good observer without the aid of strict definitions. But the more special terms that are written above one another to express the exact degree of intelligence at which various classes of animals have arrived are sometimes the names of processes that are common to a large number of particular mental acts (as 'Memory,' 'Association by Contiguity,' 'Association by Similarity,' 'Reason'), sometimes names of special acts or of concrete products of mental activity (as 'Recognition of Offspring,' 'Dreaming,' 'Understanding of Mechanisms'). This mixture of terminologies having different values is a little incongruous. The scale of emotional development seems to have been drawn up without any attempt at a preliminary analysis of the emotions, and is so far more consistent than the scale of intellectual development, which is the result of a compromise. 'Pleasures and Pains' seem out of place among 'Products of Intellectual Development'. And although in the chapter on Emotion Dr. Romanes says that the emotions are represented as originating at the same time as perception because "as soon as an animal or a young child is able to perceive its sensations, it must be able to perceive pleasures and pains," no use is made, in his discussion of the emotions, of the theory of pleasure and pain adopted by him from Mr. Spencer and Mr. Grant Allen.

It is in his detailed treatment of Instinct, extending to eight chapters (pp. 159-317), that the author makes the most decided advance. Other writers have for the most part treated some one factor in the formation of Instinct in isolation from the rest. Dr. Romanes has brought together the ideas of "Primary Instincts" that originate by natural selection, and of "Secondary Instincts" that are the result of the transmission of organised habits. He has explained how the two processes by which instincts have been formed may influence one another, and how intelligence may modify instincts formed by each process and by the combination of both. These ideas are developed with great elaboration. All the positions that are taken up as to the existence of the simple processes, as to the compounding of factors, and as to the transmission by heredity of modifications of instinct are established by evidence. A good view of the general result of this investigation is given by the diagram placed opposite p. 265.

The posthumous Essay by Darwin printed as an Appendix is chiefly a collection of facts bearing on the theory of Instinct; and other notes made by the great naturalist are used by Dr. Romanes in his own treatment of the subject. No completed theory is to be found in the Essay; but it will have some interest for those who may wish to study in an earlier stage thoughts that are fully worked out in the eighth chapter of the *Origin of Species.*

THOMAS WHITTAKER.

Fallacies: A View of Logic from the Practical Side. By ALFRED SIDGWICK, B.A. Oxon., Berkeley Fellow of the Owens College, Manchester. London: Kegan Paul, Trench, 1883. Pp. xvi., 375.

This is an ingenious and consistent attempt to work out a theory of Logic, or rather of so much of the substance of that science as falls within the writer's defined scope, from a rather original point of view. Readers of Mill's *Logic* will be familiar with a certain phraseology, enounced by him in regard to the import of propositions, about one thing or attribute being "a mark" of another. Mill's own treatise was too extensive, and, as I should express it, too objective in its general design and application, to make it centre round such a doctrine as this, but it is a possible view, and, for certain practical purposes, a useful one, as illustrated in the volume before us.

As the title indicates, the essay is concerned with the detection of Fallacy:—"I hold that to combat Fallacy is the *raison d'être* of Logic". It assumes that we have before us a definite *thesis* and may demand a reason for the same, and the inquiry is, What sorts of failure can there be in the application of the reason to the thesis? "The work before us is to survey, classify, explain, and illustrate the possible objections which can be brought against any belief, so soon as it is definite enough to take shape in language, and thereby to become a thesis for proof."

Such a design involves considerable departure from the methods and phraseology of the common systems. To begin with: instead of the threefold division naturally yielded by the two terms of the proposition, and the copula, these two terms themselves presenting as subject and predicate a more or less decidedly recognised difference of character, we have a duality only,—the mark and the thing marked,—both of these presenting the comparatively substantive character of a subject, and being symbolised accordingly by the letters S and S̶. The things which we may thus term "indicator" and "indicated" are to be understood of course with the widest possible latitude as to complexity, artificiality, and time or place-relation. Common language adopts many and various expressions for this relation, but we can always, with some violence to usage, translate it into the desired form: "the case of death may indicate (or point to) poison, or my pulse at the present moment may indicate (or show) the absence of fever, or yesterday's panic in the city may indicate (or foreshadow) a future increase of bankruptcy; but it is undoubtedly clumsy to say that Bavius 'indicates the qualities of' a fool: we habitually condense those four words into the one word 'is'."

In an extended system of Logic, or examination of the principle of evidence in general, it would become necessary to discuss the foundations limits and ultimate warrant of this indication. This was what was intended in the above allusion to Mill. But in any detailed application of the principle,—such as the discussion of Fallacies here,—we may conveniently stop short with the assumption of the fact of such indication.

One characteristic consequence of such a scheme meets us at an early stage, in the arrangement of the familiar propositions. According to the common system the distinction into affirmative and negative is considered as at least as fundamental as that between universal and particular, or even more fundamental. Those, however, who have worked at any of the recent systems of generalised or symbolic Logic have mostly found that this relative importance assumes a very different aspect there. Not only does the distinction between universal and particular become more important, but (if we wish to give an adequate interpretation to propositions with highly complex subjects or predicates) we have to credit the particular proposition with the special and peculiar function of guaranteeing the existence of its subject and predicate. Mr. Sidgwick's treatment does not lead him quite so far from ordinary convention as this, but it leads him in the same direction.[1] For instance, when we take Indication as our leading principle, the difference between indicating presence and absence becomes of minor importance in itself and is more obviously dependent upon the grammatical significance of terms or the convenience, in any given case, of proving a presence or an absence. That S is a mark of P and therefore the absence of P a mark of the absence of S; or that the absence of P is a mark of the presence of S and therefore the absence of S a mark of the presence of P, are statements which lead us in and out amongst ordinary affirmatives and negatives without much consciousness of any important change of character.

Now contrast with the above a case of *non*-indication. Suppose we say that S is not a mark of P; what does this mean and how are we to contraposit it? The reader unfamiliar with the matter will see his way best by looking at it in the guise of an ordinary proposition. That S *is* a mark of P implies that all S is P: that S is not a mark of P simply contradicts this, and therefore implies that some S is not P. The desired contraposition therefore is not what a beginner might hastily suggest, viz., that P is not a mark of S, still less that P and S have nothing to do with one another. It is, that absence of P is not a mark of absence of S. This and the original propositions are strictly equivalent and convertible propositions. Indications, therefore, whether of presence or of absence, correspond to universal propositions. They are very different in character from non-indications, which again, whether of presence or of absence, correspond to particular propositions.

A chapter is devoted to this subject of Contraposition, or rather, to use the term employed by Mr. Sidgwick, to "Counter-indication". As he remarks, contraposition is generally confined to categorical propositions, whereas a term is wanted which shall apply generally to *all* cases of indication including of course those which are put for convenience into the hypothetical form. The law is thus stated (p. 86), "All indication of $\mathfrak{S}$ by S (affirmed or denied) is expressible as indication of S by $\mathfrak{S}$ (affirmed or denied), if, and only if, the quality of both S and $\mathfrak{S}$ be changed": —by the 'quality' being understood the positive or negative character of the indication, that is, the indication of presence or absence.

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[1] With the exception, however, that, with him (p. 223) particular propositions come out as *negative*, "every 'particular' proposition, so far as it makes a tangible assertion at all, is negative in our sense".

Relations of this kind are best expressible symbolically. Mr. Sidgwick employs for the purpose the symbols $\rightarrow$ and $\not\rightarrow$.[1] Thus $S \rightarrow \mathfrak{S}$ and non-$\mathfrak{S} \rightarrow$ non-S, are a pair of such strictly equivalent counter-indications of an affirmative kind; and $S \not\rightarrow \mathfrak{S}$ and non-$\mathfrak{S} \not\rightarrow$ non-S, are a similar pair of a negative kind. The full tabular statement contains of course four of each kind. Mr. Sidgwick considers that the law of counter-indication is, however, never applicable directly, that is, never needed, in the case of concrete propositions. I should have thought that it might be equally applicable here. Take, for instance, the concrete and individual observation that my room at an inn has the bed in a certain corner; on going into a room and not finding the bed there I at once infer that the room is not mine. So in other cases, though, as Mr. Sidgwick says, in many instances we do really insert an intermediate abstract proposition.

The foregoing refers mainly to formal considerations. The latter part of the book is occupied with what may be called, by comparison, somewhat more material topics. The author's scheme, amongst other things, induces him to devote more space to the question of the "Burden of Proof" than is allotted to it in any ordinary handbooks. When we start very definitely with a thesis and the proof of it, the inquiry how we are to regard an unproved thesis, whether this be the one originally assigned or the statement advanced in proof of it, becomes of greater relative importance. Mr. Sidgwick has some good remarks upon this topic, but comes to the conclusion,—unavoidable in a formal treatise,—that no definite rules can be laid down. In the Law Courts indeed, as he remarks, somewhat stringent rules have to be laid down, for the sake of saving time and excluding needless subtleties, but in a system of formal proof we can say little more than that "He who asserts must prove," with the reservations and explanations, that whoever asserts that a thesis is *false* must accept a burden too, and that he who asserts a reason as sufficient, or claims that it is certainly insufficient, is in exactly the same position. The same holds good with him who asserts that an assertion is *doubtful*, and, moreover, he who asserts the most widely accepted doctrine cannot escape the "burden" of supporting it by reasons.

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[1] These symbols belong to a class which has been employed by a number of different writers to express 'indication' or 'implication'. They belong also to the sub-class of such symbols chosen expressly for the purpose of reminding us that such indications are not reciprocal or simply convertible. This they do by their one-sided aspect. (I see, however, that further on, p. 230, Mr. Sidgwick uses the symbol (—) for relation generally, which of course is not reciprocal.)

More than this cannot perhaps be said in a formal investigation, but it is worth spending a moment or two in seeing how the subject should be treated in a fuller inquiry into the principles of evidence. It has to be relegated to the field of Probability or Induction if we want to get clearer light upon the matter. Is it the fact that every proposition that can be uttered comes to us with a certain amount of presumption for or against it, which is to be incorporated along with the specific evidence or testimony, and duly allowed for in the determination of our assent? The subject may be looked at from two points of view. From the psychological side it may be urged that the mind does and must entertain a determinate amount of belief on every subject proposed to it. This is claimed by De Morgan, who "takes it for granted that, . . . every proposition, the terms of which convey any meaning, at once, when brought forward, puts the hearer into some degree of belief" (*Formal Logic*, p. 193). But for such belief to be of any value there must of course be some physical or external justification for it, and the question would then be, Are things so united together by causation or other uniformities that a really unique object or event cannot be found? I think that this must be admitted to be the case. With even our present knowledge of nature it would be hard to find a proposition as to which we should have to guess in blind and utter ignorance. *Some* ground, however slight, resting on Induction or Analogy or Probability would almost always be found; so that if the proposition could be submitted to a perfectly impartial umpire he might decide whether we were to put the initial belief as positive or negative. Practically this is clearly out of the question, but it deserves notice that the failure does not so much depend (as might be currently supposed), upon the total absence of all connecting links, but rather on the fact of there being so many of them, all excessively slight perhaps and telling in opposite directions, so that the resultant is quite incalculable.

The main outlines of the book may be indicated as follows:— The possible objections to an assertion may be of three different kinds: (1) We may be met on the threshold by the objection that it is not capable of either proof or disproof owing to its "unreal" character, such unreality arising either from its being merely tautologous, or self-contradictory, or involving terms which are devoid of meaning. (2) It may be objected that the Thesis is a mere assertion offered without support or justification. (It is here that the discussion about the Burden of Proof, alluded to above, naturally comes in; for of course the speaker may claim that his statement starts with credit on its side which deserves definite disproof.) (3) Granting the reality and *primâ facie* validity of the assertion, and the sincerity with which reasons are alleged in its favour, such reasons may be insufficient for well-grounded assent. This class of objections leads us into the central part of the subject, for they occupy the field of what are commonly known as Fallacies.

Of these Fallacies the following is the classification suggested, as likely to be offered by a fairly acute but not technically trained mind:—(1) That the reason given (or the objection) is beside the point. (2) That the reason given begs the question. (3) That some important factor has been overlooked or forgotten. (4) That if the argument be cogent, some absurdity (or at least untruth) must also be believed. The discussion of these classes, and the reference of the traditional fallacies of the text-books, so far as they fall within the scope of the treatise, to one or other of these divisions occupies a large part of the remaining chapters. The rest of the book is mainly occupied with a discussion which is always good, and often filled with acute and ingenious comment and illustration, upon the nature of the commonly recognised types of argument as seen through the light of the special medium of interpretation here adopted. Thus the nature of the arguments from Example, from Analogy, from Sign, and so forth, are discussed, and the special danger to which each is liable are pointed out.

It only remains to add that one minor feature in the work which is distinctly good is to be found in the novelty and appropriateness of the illustrations with which it is abundantly furnished.[1]

JOHN VENN.

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[1] I am tempted to add a few remarks on one old example. It is the famous case of the St. Kilda islanders, and their habit of catching cold when visited by strangers, which occurs as an illustration in the handbook of Prof. Fowler. Mr. Sidgwick refers to Dr. Paris's *Pharmacologia*, from which Prof. Fowler took it. It is, however, much older than this. Dr. Johnson had a hearty scoff at the story, on his visit to the Hebrides, as described in Boswell's narrative of that journey. He heard of it from K. Macaulay whose work was published in 1764. The oldest reference I have seen is in M. Martin's account of his visit to the island, which took place in 1697. He had heard of the fact before and made many inquiries about it. He states that the people "contract a cough as often as any strangers land and stay for any time among them, and that continues for some eight or ten days. They say the very infants at the breast are affected by it."

As regards the explanation that the cause of the illness is not the coming of the strangers, but the N. E. wind which is supposed to accompany them, which finds favour with Dr. Paris, this had been already proposed in Boswell's time. It was a sheer guess of a certain "ingenious

Studies and Exercises in Formal Logic, including a Generalisation of Logical Processes in their Application to Complex Inferences. By JOHN NEVILLE KEYNES, M.A., late Fellow of Pembroke College, Cambridge. London: Macmillan, 1884. Pp. xii., 414.

This work belongs to the same class as Jevons's *Studies in Deductive Logic*. It is not so much a systematic treatise on the theory of the subject as a systematic collection of examples illustrating all the important points in that theory. To Jevons must be assigned the credit of having been the first to introduce into the study of Logic this important aid to intelligent instruction, familiar as it had long been in the cognate science of mathematics; but the present work seems to me in several respects to represent a decided advance over its predecessor. The range of examples in itself is better, the main principles of the science seem more clearly and consistently conceived, and are not marred by the few unfortunate crotchets with which readers of Jevons will be familiar. Moreover, in the latter part of the work, which deals with those generalised problems which nave not hitherto been attacked without the aid of mathematical symbols, Mr. Keynes shows constructive sagacity and skill of a high order, and has, it seems to me, given us a real advance on anything hitherto effected.

From the nature of the case much originality is not to be expected or desired in the treatment of the traditional portions of

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friend" of Dr. Burney, a Mr. Christian, resting on a queer fancy that people could not *reach* the island except with a directly fair wind :—Dr. Paris and others convert this into an inference that they could not *land* there but with this wind, the statement of the best authorities being that one can land with almost any but a S. E. wind, and best of all of course when there is no wind. The explanation has always seemed to me one of the most remarkable instances of ingenious absurdity. That the inhabitants of an island out in the Atlantic, who live by fishing and fowling, should find one particular wind, and that a comparatively dry one, try their sensitive frames passes all belief. Nor is the argument better than the facts. The pernicious wind is apt to blow at any time of the year, whilst strangers come only in the height of summer and that but rarely; in former days, the factor once or so in the year, and strangers but once perhaps in a dozen years. The wind apparently does not hurt the people unless it brings strangers with it, so that Dr. Campbell's solution at which Dr. Paris scoffed,—that the cause lay in 'the effluvium from human bodies,' was really in better accord with experience. The only reasonable discussion of the facts, as such, that I have seen is by Dr. T. E. Morgan (*Brit. and For. Med. Ch. Review*, 1862), who, visiting the island in 1860, found the people in the act of suffering from this so-called "boat cough" which they had just caught from the visit of another ship. After careful inquiries he fully admitted the truth of the strange account. He is inclined to adopt the contagion-theory, and to connect the facts with other well-known cases in which the inhabitants of very remote islands show a peculiar sensitiveness to certain infectious disorders.

the subject. One great merit of Mr. Keynes's work here consists in the variety and ingenuity of the examples devoted to the illustration of portions of the science which are very commonly neglected. To mention only one of these: the question whether, and in what sense, the existence of anything corresponding to our logical terms is presupposed in the statement of propositions and construction of reasonings, is almost uniformly disregarded—in fact no less an authority than Jevons himself has summarily remarked in reference to one such example which had found its way into an examination paper, 'that it must have been proposed under some misapprehension'. The following problem from Mr. Keynes's collection will serve to show how untenable such a view is:—" Whatever P and Q may stand for, we may show *a priori* that some P is Q. For all PQ is Q by the Law of Identity, and similarly all PQ is P; therefore by a syllogism in *Darapti*, some P is Q. How would you deal with this paradox?" To those who hold, as presumably most conceptualists do hold, and as Mr. Spalding explicitly claims—that the universal affirmative 'All X is Y' has no other meaning than 'All X, if there be any, is Y,' the question may fairly be put, how they avoid the immediate inference from 'X is Y' to 'XZ is Y'. Again, take the analogous subject of the truth or falsehood of the premisses of a syllogism; it has been summarily declared, as by Hamilton, that this is one of the subjects with which no logician has anything to do. But take the following example, which is but one of a class:—" Prove, by means of the syllogistic rules, that, given the truth of one premiss and of the conclusion of a valid syllogism, the knowledge thus in our possession is in no case sufficient to prove the truth of the other premiss". It is proved by showing "that if one premiss and the conclusion be taken as a new pair of premisses they do not in any case suffice to establish the other premiss," a fact which follows readily from the common rules of the syllogism. Of course it might be urged, and doubtless would be urged by Hamilton, that when we thus speak of substituting for a given proposition its contradictory, we are not in any way necessarily dealing with questions of truth and falsehood. But surely such an argument shows how very narrow and artificial is the boundary by which these latter considerations are excluded, for the moment we admit the conception of a test, no matter what, by which a proposition or its contradictory is to be selected in preference, we *are* deciding whether the former is to be considered true or false.

One among the few distinct innovations introduced by Mr. Keynes is a kind of immediate inference to which he gives the name of the *Inverse*, "by which, given a proposition having S for its subject and P for its predicate, we seek to obtain a new proposition having not S for its subject and P for its predicate". I feel some doubts as to the advisability of this introduction. It is urged indeed that starting from S and P we have eight possible relations between S, P, not-S, and not-P, of which two are well recognised under the names of converse and contrapositive, and a third less so under that of obverse, and that symmetry demands the completion of the scheme. Mr. Keynes's discussion is very full, clear, and accurate, and he shows that of this "inverse" description only two cases are possible, *viz.*, from 'All S is P' we may infer that 'Some not-S is not P,' and from 'No S is P' we may infer that 'Some not-S is P'; the conclusion being in each case reached by successive recognised steps of conversion and obversion. This is true, and such relations ought certainly to be worked out for practice by the student. But it seems to me a doubtful advantage thus to add to the technicalities of the subject.

The part of the work which will probably excite most interest is that which deals with complex propositions. Mr. Keynes has shown that examples of a degree of intricacy which I should not have supposed could be grappled with except by aid of some kind of algebraic or symbolic procedure may be solved by generalisations of the common processes. Whether this can be regarded as "Common Logic," and whether the processes could be practically worked out except by those who had some experience in mathematical analysis is another question, but there is no disputing the great ingenuity of the methods here adopted.

The main process employed is a generalisation of the ordinary contraposition. From 'P is Q' we infer that 'not-Q is not P'. Apply this to the proposition that 'X is Y or ZW', and we infer that 'what is not (Y or ZW) is not X'. This calls for a simple rendering of the contradiction of a complex term. Mr. Keynes adopts substantially that which was first suggested, I think, by De Morgan, and first worked out in detail by Schröder, and which may be expressed in common language by saying that "for each simple term involved we substitute its contradictory; and everywhere change *and* for *or* and *or* for *and*" (p. 294). This makes the contradictory of 'Y or ZW' appear as 'y and (z or w),' adopting the notation that not-X is represented by x, and that juxtaposition of letters is equivalent to their combination by *and*. From the original proposition therefore we infer that 'what is y and either z or w is x'. In order to obtain y separately from this, we need to invoke a second method of which large use is here made. It may be stated in single letters thus: 'If PQ is R, then P is either not-Q or R' (this is the common-logic equivalent for the Boolian symbol of *division*). Applying this to the above complex expression it yields 'y is neither z nor w, or it is x'; or more simply y is ZW or x.

The above is a mere sample of some of the processes employed. That they are effective enough may be judged by the fact that the solution is given of the following problem, involving ten terms:—

Given *bc* is DE or D*f* or *hi*,
C is *a*B or DEFG or BFH,
B*cd* is *e*K or *hi*,
A*cf* is *d*,
i is BC or C*d* or C*f* or H,
ABCDEFG is H or I,
DEFGH is B
AB*k* is *f* or *h*,
ADFI*k* is H,
ADEFH is B or C or G or K;
show that A is K.

I have no space to do more than briefly indicate some of the criticisms suggested by these methods. In the first place are they actually more compendious and effective than those which we already possess? It is hardly possible to answer this inquiry summarily, because so much depends upon the extent to which, in any given example, we make appeal to such intermediate formulæ as we may have already established and can thus take for granted. But, speaking generally, it seems to me that Mr. Keynes's plan is at least as effective as any other when we are dealing with propositions couched originally in the predicative form P is Q, but I rather prefer methods of the Boolian kind where our data fall into the equational type P = Q. I think also, but may be liable to prejudice here, that the speculative questions which give these advanced logical processes their main value—*e.g.*, the nature of limiting cases, the interpretation of symbolic forms—are more instructively set before us when we make appeal to some extent to mathematical or other symbols. But the further question arises whether these methods can fairly claim to belong to the Common Logic at all. It must be frankly admitted that no symbols are introduced beyond those universally employed in the older treatises, with the slight exception of the abbreviation *x* for not-X. On the other hand the spirit of the methods is throughout of the mathematical type in regard to the generalisations employed; and some of the processes—as, for instance, the combination of propositions with disjunctive predicates—are to all intents and purposes translations into common language of the 'multiplication' of Boole and others. I feel tolerably sure that Mr. Keynes himself would not have worked out his scheme unless he had been a thorough adept in the more symbolic methods, and I rather doubt if there are many of the adherents of the old scheme who will be able, without his training, adequately to appreciate these very ingenious modifications of it.

J. VENN.

Dynamic Sociology, or Applied Social Science, as based upon Statical Sociology and the less Complex Sciences. By LESTER F. WARD, A.M., 2 vols. New York: Appleton, 1883. Pp. 706, 690.

This acute, original, and somewhat bizarre book might be succinctly described as 'Practical Proposals for a Short Cut to Utopia,' or rather, its able author intends it for that: but in reality its proposals are on the whole quite as impracticable as those of most other previous realistic Utopia-mongers. In the main, indeed, the work is fundamentally political in its motive, and as such it would demand no notice here: but the treatment is so purely philosophical, and the psychological passages are so numerous and often so interesting, that it calls for some slight criticism, from this side at least, on the part even of a specially philosophical and psychological journal. Here in brief is a bald *résumé* of Mr. Ward's central envisagement of the great sociological problem.

Happiness is the final end of all human endeavour. It can only be attained or increased for the mass of men by means of Progress. But Progress hitherto has proceeded by the wasteful natural method of evolution. This implies a constant rhythm, a sort of tidal wave, now advancing, now receding, in which the total gain is measured only by the excess of the forward impulse over the nearly equal backward one. Natural selection is a slow and uneconomical process: artificial selection is far more rapid, direct, and effective. In the one case, the better organisms only slowly survive in a life and death struggle with the worse-endowed; in the other case, the best breeders are chosen beforehand, and the conditions are rendered as easy as possible for the most desirable among the offspring. Even so sociology and social development must pass from their present passive or natural stage to an active, artificial, and teleological stage. At present, whatever advance man makes is made by natural selection, and is in one sense the result of chance. But just as man has directed the development of his domestic animals by artificial selection, so must he direct the development of his own social organism by the application of a teleological method. The old slow and imperceptible genetic progress must be superseded by a new and rapid purposive progress. The social forces must be controlled by intelligent design. How is this end to be attained? By the diffusion of knowledge. It is want of knowledge that keeps men back from progress. If every man were fully and properly educated, progress would be pursued as a definite aim, sociology would enter the dynamic phase, and happiness would be in train of universal acquisition. Education is Mr. Ward's panacea for all the ills that flesh is heir to: the cure for our curse of overworked millions on the one hand, and unemployed millions on the other.

Viewed in itself, this central theme is so familiar, trite, and almost trivial, that Mr. Ward might seem to have hard work in spreading it out over two solid and bulky volumes. In reality, however, he has gone so deeply into the matter, and has wrought out his theory so logically from first principles, that his book commands respect not merely as a complete and fully-rounded social philosophy of its own sort, but also as a curious piece of strictly original and independent thinking. What with the ordinary prophets of education is a pious opinion, is with Mr. Ward a logical conclusion, as rigorously deduced from given premisses as a proposition of Euclid. In fact, this very rigour is at once the great charm and the great stumbling-block of the book: on the other hand, it preserves the author at every step from needless digression or rhetorical display, but on the other hand, it leads him into an excessive and inordinate schematism, accompanied by its usual concomitant of needless neology, or at least of a technically limited and crabbed terminology.

The book begins with an introductory chapter, in which this central idea of a Dynamic Sociology—an art of progress based on the science of man and the other less complex sciences—is clearly sketched out: and the province of that art is summed up as " to overcome these manifold hindrances to human progress, to check this enormous waste of resources, to calm these rhythmic billows of hyperaction and reaction, to secure the rational adaptation of means to remote ends". The introduction is succeeded by two historical chapters on the philosophic systems of Comte and of Herbert Spencer, which are really quite unnecessary in their actual context, and only serve to swell a very big book to still bigger dimensions. True, they illustrate the way in which Mr. Ward himself arrived at his own theories, and so they are of a certain personal genetic value to him, no doubt: but they contain little more than a *résumé* of what every one of Mr. Ward's readers doubtless already knows—the *Philosophie Positive* and the *System of Synthetic Philosophy*. Our author, however, seems to us to do scanty justice to Mr. Spencer, and greatly to underrate his own indebtedness to all his works, especially the essay on Education. His summary of Mr. Spencer's position will probably be read with some amusement on this side of the Atlantic:

> "Mr. Spencer has steadfastly declined to be drawn by his logic into anything that even the most incredulous could call a vagary. *No man probably ever wrote as much as he has written without saying more that the average judgment of mankind could not indorse as soon as presented.* This is due to the firm manner in which his reason is enthroned, and the all-sided and practical wisdom with which his extensive information enables him to survey every problem. But it is just these qualities that render him unsystematic, non-constructive, and non-progressive. Paradoxical as it may sound, and whether it be construed as complimentary or otherwise, Mr. Spencer has too much good sense and too much real knowledge to build a perfect system of philosophy."

The words we have ventured to italicise are certainly curious as applied to one of the best-abused and most vilified of all philosophers, ancient or modern.

With a laudable desire to make his own theory (unlike Mr. Spencer's) thoroughly systematic, Mr. Ward next proceeds to found his dynamic sociology upon a solid and reasoned cosmical ground-work. He finds it necessary, in fact, to construct a philosophy of the universe, as preliminary to his speculations (or demonstrations) upon the means for attaining the maximum sum of human happiness. Nobody can deny that in this he is perfectly right: but it would certainly seem more natural to set forth one's cosmical philosophy first as a substantive theory, rather than prefix it as an introduction to a single treatise on Dynamic Sociology. In this portion of his task, Mr. Ward attaches much importance to the "Law of Aggregation," as distinguished from that of Evolution proper; though curiously enough he nowhere definitely formulates exactly what he conceives this so-called Law to be. He begins with Primary Aggregation or Cosmogeny, and then goes on to Secondary Aggregation as exemplified in Biogeny, each of which subjects occupies a long chapter. Though the questions dealt with here lie somewhat outside the province of MIND, it may be mentioned in passing that Mr. Ward's grasp of the latest scientific doctrines is very firm and comprehensive, and that these chapters display an extremely high degree of co-ordinating scientific faculty. In fact, they seem to us by far the best thing in the whole book. From Biogeny, Mr. Ward passes on to the alternative aspect of Secondary Aggregation as Psychogeny, or genesis of mind. Regarding spontaneous motility as the fundamental distinguishing property of protoplasm, he considers that sensibility is intimately bound up with irritability, and assumes therefore that consciousness inheres in every molecule of protoplasm to a certain limited degree. Of the deeper problem, What is the protoplasm *minus* the consciousness? What is matter itself out of relation to, or prior to, a percipient mind? he takes little or no notice. Starting from these elementary molecule souls (the expression is not Mr. Ward's) he traces the gradual development of the higher forms of consciousness, and especially of "will," and of "intellect". In this connexion he distinguishes strongly between intellect and intelligence—a distinction of much importance to his subject in the later portions of his reasoning. Intellect represents the mere mental capacity, in one word, the *form:* intelligence embraces all that is implied by intellect, together with all its registered experience, in one word, form *plus* matter: or, as Mr. Ward himself puts it, intellect *plus* knowledge. It is a favourite thesis with him that the intellect of mankind has increased very little since the days of Plato and Aristotle, but that the intelligence has increased immensely.

> "The reason why the intelligence of Europe and America to-day is so much greater than that of Greece and Rome two thousand years ago is not to any great extent because the power of intellect, or co-efficient of intelligence, has increased, but because the acquired knowledge is so much greater

both in quantity and quality. And this, when sifted to the bottom, may be attributed to the more universal practice of recording, preserving, and inculcating on succeeding generations the truths learned by preceding ones and found by experience to be most valuable. The general deduction which follows of itself from these facts obviously is that, where intellect is equal, intelligence will vary with the amount of *education*."

We may pass over the chapter on Anthropogeny, which contains nothing new to readers of the calibre for whom Dynamic Sociology is designed—scarcely anything more than arguments in favour of the now accepted doctrine that man descends from a simian ancestor—and proceed at once to that on Tertiary Aggregation or Sociogeny, which embraces an immense amount of novel and very suggestive matter. To give a summary, even the briefest, however, of this long and interesting essay would be impossible within the limits at our disposal: Mr. Ward has done so himself in schematic outline at vol. I, pp. 480-482, and his table of heads alone, there set forth, occupies nearly three entire pages. This chapter closes the first volume, which is thus entirely given over to clearing the ground for the effective development of the Dynamic Sociology.

The real work of the treatise begins in the second volume. Unfortunately, it does not fully come up to the promise of the rather lengthy and wasteful preamble. Mr. Ward's ἔργον is inferior on the whole to his πάρεργα. Setting out with the position of man in the world, as a conscious, intelligent, purposive agent, in the midst of an unconscious, non-intelligent, blindly active environment, he declares that man should not rest content with being the *minister et interpres naturæ*, but should aspire on the contrary to be her master—not *parendo* but *sciendo imperare.* Though intelligence is merely a product of evolution, it can itself further and advance evolution in future, by substituting the teleological method of purposive endeavour towards a definite end, for the genetic method of blind advance towards the empirically established better. "Society can and should seriously undertake the artificial improvement of its condition upon scientific principles strictly analogous to those by which the rude conditions of nature have been improved upon in the process which we call civilisation."

How is this to be done? Not by what Mr. Ward describes as the "direct method of conation," that is to say, by an endeavour to take happiness by storm—to get at it by immediate effort; but by what he calls the "indirect method of conation," that is to say, by ascertaining and ultimately producing the conditions under which alone increase of happiness is really possible. What these conditions are, Mr. Ward sets forth in the following systematic table of the Theorems of Dynamic Sociology.

"A. Happiness is the ultimate end of conation.

B. Progress is the direct means to Happiness; it is, therefore, the first proximate end of conation, or primary means to the ultimate end.

C. Dynamic Action is the direct means to Progress; it is, therefore, the second proximate end of conation, or secondary means to the ultimate end.

D. Dynamic Opinion is the direct means to Dynamic Action; it is, therefore, the third proximate end of conation, or tertiary means to the ultimate end.

E. Knowledge is the direct means to Dynamic Opinion; it is therefore, the fourth proximate end of conation, or fourth means to the ultimate end.

F. Education is the direct means to Knowledge; it is, therefore, the fifth proximate end of conation, and is the fifth and initial means to the ultimate end."

The whole of the second volume is an expansion and elaborate justification of the six theorems thus formally set forth. Happiness is shown to be the one ultimate good, which may be sought directly by the individual, but can only be attained by the society through indirect means. It is demonstrated with much show of mathematical cogency that the only means of so attaining it is through progress: that progress again is only possible through dynamic action; and so on until at last we come to the final means, education.

Two criticisms must be passed upon this last rigorously demonstrative portion of Mr. Ward's work. In the first place, it is vitiated throughout by the deliberate and dogmatic reiteration of the astounding Jeffersonian paradox, that all men are born equal. By adopting this pre-Darwinian figment, Mr. Ward throws overboard a great part of all modern biological truth, and utterly ignores the overwhelming value of hereditary influences. Over and over again he talks as though almost all human beings were equally capable of education: once he even asserts that the large additions made to science and literature by persons placed in high official or professorial positions indicate that almost anyone else put in the same place would have done equally well. He thus quietly ignores the fact that these people were put there just because they possessed congenital faculties which fitted them for doing that particular work ably and well. Is it not a transparent absurdity to say that almost anybody else would have made as good an Astronomer Royal as Sir Wm. Herschel? It would be easy enough to understand such an argument if it came from essentially aristocratic England, where any man who happens to be born a duke is considered good enough to make a cabinet-minister: but coming from democratic America, with its career open to the talents, it is simply extraordinary and almost incredible. Hardly a page in Mr. Ward's later chapters is free from the initial fallacy thus boldly set forth. It is assumed time after time that though intelligence differs widely, intellect is everywhere about the same: that most people are capable of being educated up to that dynamic opinion which would finally ensure the triumph of progress. We should gather from this that Mr. Ward has had no practical personal experience in the work of teaching. In a class of 15 boys of 15 years old taken from the exceptionally intelligent English upper and middle classes, it may be safely asserted that only three on an average can ever be taught really to understand, we do not say the fifth, but the first proposition of the first book of Euclid. Of the remaining twelve, some six might be taught it so far by rote that they could repeat it correctly even if the letters in the figure were transposed: three could probably learn it by heart, but without being able to repeat it with variations in the letters: and three more would be incapable of repeating it at all in any way. When this is the case even in congenitally intelligent classes (relatively speaking) what can we expect that education will do with the less developed intellects of the ignorant masses? How many generations must pass by before we have begun appreciably to affect their "coefficient of intelligence,"—their brain and nervous system? The error is a strictly psychological one: it consists in vastly underrating the primordial difference between brains—a difference so immense that the majority of men are probably born incapable of ever receiving in the most passive manner those facts and truths which alone would lead toward "dynamic action". What percentage of Aryan children, even, for example, does Mr. Ward suppose to possess minds into which the simplest correct ideas about the solar system could ever by any method be instilled?

The second point is a still more fundamental one. Mr. Ward's "means to the ultimate end of conation" do not go quite far enough. He stops short at education, which he calls "the last proximate end and initial means" to the final attainment of happiness. But how are we to ensure such an education as Mr. Ward sketches, even for that very small minority which might perhaps be congenitally capable of assimilating it? We must confess that we read his last chapter with a bitter feeling of disappointment. After so much flourish of trumpets, we had hoped that Mr. Ward had really got hold of some practical suggestions for bringing about the excellent education he desires. Unfortunately, he has none, and his book thereby stands self-condemned. It is not Dynamical at all. The mainspring is entirely wanting. The final means to the great end is never even alluded to. The real education which Mr. Ward would like to see made general, we know to be utterly repugnant to the feelings of the vast majority of men. It can be realised in the end solely by the slow action of that wasteful genetic process of which Mr. Ward speaks throughout with so marked contempt. Only by gradual increase of the knowing few at the expense of the ignorant or wrong-headed many can a public opinion arise which would even tolerate a national system of scientific education. There do exist plenty of national educational systems at present, and they are almost all impartially condemned by Mr. Ward as bad in method and useless in content. How, then, can any other system be introduced so long as men at large think as they do think? In the last resort, Mr. Ward himself must fall back upon the genetic method, and must be content to aim at influencing the solitary opinions of a few already intelligent and mainly sympathetic individuals.

He cannot escape from the natural helplessness of the dissatisfied social unit: and the perusal of his last word only strengthens in us the feeling that the one consistent attitude of the would-be dynamic sociologist must be an attitude of "refined despair". In order to start his Utopia he has nothing to do save to convert the world: but then—. In short, he could do a great deal if only he had a *ποῦ στῶ*. In this vicious circle, Mr. Ward's *Dynamic Sociology*, it seems to us, revolves aimlessly, and leaves the real work of evolution to be still performed by the much despised agency of natural as opposed to teleological causes.

GRANT ALLEN.

The Origin of Ideas. By ANTONIO ROSMINI SERBATI. Translated from the Fifth Italian Edition of the *Nuovo Saggio sull' Origine delle Idee.* Vol. II. London: Kegan Paul, Trench, 1883. Pp. xxiii., 501.

Having in those sections of the *Nuovo Saggio*, which the Translators issued some months ago as Vol. i., criticised and repeated all previous theories respecting the origin of ideas, Rosmini proposes his own theory in the elaborate section which makes up the present volume, and we thus reach the positive part of his doctrine. But there is in it little more than reiteration in lengthy detail and in continuous systematic form of the occasional short statements of his discoveries and views which were found here and there in Vol. i., and summed up in MIND XXXI. And it is doubtful whether the expansive treatment of this volume does not make his position more obscure and questionable. He begins with an examination of that innate intuition of possible and quite indeterminate or characterless Being, which he takes to be the *sine quâ non* of intellection or knowledge in general. For a sufficient account of this innate idea or "concept" of being, see the notice referred to. "Being is the light shining in our mind by nature". Every intellectual act supposes it. Every other idea is purely derived from it, or compounded of it with matter of sense. Our first principles of reasoning are only so many ways of applying it. From it, he gets our concepts of Cause, Substance, Body "animate and inanimate," Time, Motion, and Space. This is the sum and substance of the present volume.

Great pains is taken to show that the priceless concept does not come of sense, because it is objective or in-itself, only possible or ideal, "simple" and characterless, one and always the selfsame, universal, necessary, immutable, and eternal. Nor will Locke's reflection give it, nor abstraction or generalisation; and, yet, Rosmini calls it "the last of abstractions," and says "Beyond this it is impossible for abstraction to go without our losing all object of thought, or in other words, ceasing to think"! There may be an obstinate doubt in some minds whether this consummation which the pessimists so devoutly desire, would not occur sooner. Dwelling on this void and blank Beingness, is much like the fakir's dwelling on 'Om'. However, this elaborate elimination of all other possible sources is the "demonstration" that it is "innate" in us, and that it is in fact the very *umbilicus* of all our thinking and of our intellectual being. When we gaze on it, we gaze on our own spiritual navel. Let us see what comes of this concentration, since according to Rosmini all our ideas come of it. "All our *acquired* ideas are a compound of matter and form," and their "twofold cause is the idea of being and sensation". "*Pure* ideas," again, "take nothing from sense," and simply issue from the innate intuition, as for example, the principle of non-contradiction, because when reduced to its simplest terms, it is no more than to say, "Being cannot at the same time not be," and possibility cannot be impossibility! From this, "Causation" follows, because "To say that which does not exist, operates, is a contradiction". Of course, "substance and accident" are simply "cause and effect" taken statically. "Operation" of an agent rather than invariable antecedence or concomitance, is with Rosmini the essential fibre of causation, and his attitude, here as always, is ontological and scholastic. It is easy, therefore, to see, that from feelings felt he will infer a subject, soul or Ego feeling them, refuting Hume, and "body as the proximate cause of our external sensations," refuting Berkeley. But all this appears to be only a very learned and elaborate repetition of Reid and his school, for whom Rosmini has the sincerest respect and gratitude.

In his treatment of the ideas of Time, Motion, and Space, which he, in contrast with the finding of Kant, finds to be only abstract and acquired ideas, there is much speculation that is curious and interesting about the discontinuity of Time and Motion. The continuity and infinite divisibility of Time is an illusion, because "All that happens must happen by instants," though it is difficult to see how there can be room for anything to happen in an absolute instant, or how the instant itself can effect a footing in Being without duration. The most absolute barest instant must at least *last* an instant. That "the real continuity of motion is an absurdity" is, of course, an inference from the real discontinuity of Time.

What remains of the book—some 150 pages—is taken up with the psychology of Sense-perception, but we fail to find in it any valuable contribution to the science of the day.

On the whole, Vol. ii. is a disappointing one, and at the end of it, we do not find ourselves carried, in matters of genuine philosophical import, much beyond where Vol. i. left us, and must wait for some clearer light to come in the third and last volume, with the patience of hope.

J. Burns-Gibson.

VIII.—NEW BOOKS.

[*These Notes do not exclude Critical Notices later on.*]

BENEDICTI DE SPINOZA *Opera quotquot reperta sunt.* Recognoverunt J. VAN VLOTEN et J. P. N. LAND. Volumen posterius. Hagae Comitum apud Martinum Nijhoff, 1883. Pp. x. 634, with portrait and facsimiles of handwriting.

The Chief Works of BENEDICT DE SPINOZA, translated from the Latin, with an Introduction by R. H. M. ELWES. London: George Bell & Sons, 1883. Pp. xxxiii. 387; xxii. 420.

Our first duty in noticing the completion of the Dutch Committee's edition of Spinoza—the first really correct and complete edition, it is well to repeat—is to join in Prof. Land's regret for the loss of his colleague Dr. Van Vloten, who was carried off by a rapid illness in the autumn, just before the work was finished. The revived study of Spinoza, both in the Netherlands and elsewhere, owes much to Dr. Van Vloten's constant vigour and enthusiasm. In this volume we have Spinoza's Letters, now for the first time duly collected in order of time, critically edited, and furnished with all attainable information as to names of persons and other matters omitted (for the most part of set purpose) in the *Opera Posthuma.* Where an original Dutch text is preserved, that text is here given as well as the Latin version, and a good many of the details supplied in the notes will be practically new to students; we say practically, for the editors' task was not so much that of bringing new matter to light as the far more troublesome and less grateful one of ordering scattered materials which had never been thoroughly dealt with as a whole. Examination of the Royal Society's manuscripts has however revealed a couple of unpublished paragraphs in letters from Spinoza to Oldenburg, and a great number of minute variations throughout the text of these letters, which show that Spinoza must have carefully prepared for eventual publication the copies which he kept.

The Dutch text of the *Korte Verhandeling* (Spinoza's early treatise on God and Man, first published by Van Vloten in 1862) is not accompanied by a Latin version, the editors having been of opinion that sufficient provision was already made in that behalf by Schaarschmidt, Sigwart, and Janet. Under the peculiar circumstances there is no reason to dissent from their conclusion. In a standard edition like the present a Latin version of this work, if undertaken at all, must have aimed at restoring the lost original as nearly as possible in the form that Spinoza gave to it. This might probably be done with a fair degree of approximation, but certainly would cost more trouble than it could be worth.

An excellent etching reproduces the Wolfenbüttel portrait of Spinoza, which appears to be accepted by experts as the archetype of the better known engraving found in many copies of the *Opp. Posth.*, as well as of the picture now in the town museum at the Hague. The miniature bought some time ago by the late Queen of the Netherlands, which is of a different type, is conjecturally identified with the picture of Spinoza said to have been taken by his host Van der Spyck. One would like, however, to have more external evidence about this miniature. Apparently there is nothing to warrant it but its general coincidence with the description of Spinoza's person in Colerus.

Mr. Elwes gives us the first complete English translation of Spinoza's principal works in two handy volumes, with a modest, concise, and careful Introduction. As far as can be judged from a cursory inspection, it is a solid and scholarly piece of work. It is only to be regretted that Mr. Elwes has not had the advantage of the Dutch editors' text for the Letters. In translation, however, they have been purposely abridged to some extent by omissions of non-philosophical matter, which makes this of less importance. One is also disposed to regret that Mr. Elwes did not, while he was about it, include the *Korte Verhandeling*, of which we have no English version at all. It is true that the interest of the work is chiefly in the witness it bears to the gradual development of Spinoza's ideas and his relation to contemporary speculation, which is the affair of special students. But this is equally true of many of the Letters, and of considerable parts of the *Tractatus Theologico-politicus* and the *Tractatus Politicus.*

It may be not irrelevant to cite here a lately published tribute to Spinoza from an unexpected quarter, the letters of Gustave Flaubert to George Sand which have appeared in the *Nouvelle Revue* (Jan. 15, 1884, p. 251). Speaking of his *Saint-Antoine*, Flaubert says:—"Je vais m'y remettre dans une huitaine, quand j'en aurai fini avec Kant et avec Hegel. Ces deux grands hommes contribuent à m'abrutir, et quand je suis de leur compagnie, je tombe avec voracité sur mon vieux et trois fois grand Spinoza. Quel génie! quelle œuvre que l'*Éthique!*" [F. P.]

Outlines of Psychology: with special Reference to the Theory of Education. By JAMES SULLY. London: Longmans, 1884. Pp. xxiv. 705.

This work consists of fourteen chapters. The first three give a general account of mental phenomena and their laws. Then follows a chapter on Attention, after which come six chapters dealing with the successive stages of intellectual development, namely, Sensation, Perception, Reproductive Imagination, Constructive Imagination, Conception, Judgment and Reasoning. Two chapters are reserved for Feeling, and two for Volition. The work, while following in the main the traditions of English psychology, seeks to assimilate the more important results of German research. Considerable use has been made both of the Herbartians, particularly Waitz and Volkmann, and of the school of physiological psychology of which Lotze was perhaps the principal founder. The early stages of mental growth receive special attention, an attempt being made by the help of personal observation, supplemented by the researches of others, to assign approximately the date at which the more important psychical products, *e.g.*, perception of distance, judgment, first manifest themselves. A practical turn is given to the exposition by bringing out the bearing of psychological principles on the conduct and cultivation of the mind, and special sections are occupied with tracing out their main applications to the art of Education.

The Relations of Mind and Brain. By HENRY CALDERWOOD, LL.D., Professor of Moral Philosophy, University of Edinburgh. Second Edition. London: Macmillan, 1884. Pp. xx. 527.

This second edition of Dr. Calderwood's work (originally published in 1879 and reviewed in MIND XVII.) includes a considerable quantity of new matter, for which room has partly been made by a pruning of several of the more argumentative chapters. One entirely new chapter on "Animal Intelligence" is interpolated in the middle, running to a length of 90 pp.; and there are a few other insertions. The actual increase of bulk is about 70 pp. The chapters descriptive of the nervous system are practically unchanged. No attempt has been made to incorporate the more recent results of physiological research, for example, in the matter of localisation of function; but these, it may be said, do not affect the author's contention. More to be remarked is the absence of any effort to supplement positive omissions in the original view of the working of the nervous system; for instance, the process of inhibitory action within the system is still made only the subject of passing allusion here and there, though nothing could be of greater import for the discussion of "Experience as connected with Motor Activity". The omissions now made are all good, being mostly of rhetorical passages, as at the end of c. vii. and throughout c. xv. (original numbering), which weakened instead of adding force to the general argument of the book. This is now made still clearer than it was by the new chapter on "Animal Intelligence". Here Dr. Calderwood does excellent service by bringing expressly into view the peculiarities of sense-endowment distinguishing the different classes of animals (ants, dogs, &c.), for which exceptional intelligence is claimed; and he is thus able to account for much in their action that is too readily regarded as mysterious. His own position is, that, beyond a highly-developed and varied sensibility, nothing is needed to explain the so-called intelligence of animals but action of a mechanical type provided for by fixed connexions between sensory and motor cells in the brain and other nerve-centres; whereas human intelligence (properly so called—for more of human action than is generally supposed is of the merely animal kind) is *only* to be understood as referable to a hyperphysical entity, which somehow can be affected and operate through brain but has its being in a region wholly apart. In short, the old doctrine of Animal Automatism *versus* Human Conscious Intelligence, accommodated to modern physiological speech. The position, however, is far from consistently maintained. If the sensibility of animals is mere physical affection, as Dr. Calderwood would fain represent it when he has his ultimate conclusions in mind, it is difficult to see how he can interpret such facts of canine sense of wrong-doing as he still reports at p. 140 (without heed to Dr. Maudsley's doubts vivaciously expressed in MIND XV. 412). On the other hand, if, in spite of such uncertainty and wavering speech as we find, *e.g.*, at p. 193, § 4, he cannot seriously be supposed to deny to animals something analogous to our conscious experience of Sensation, it is no less difficult to see how he can then be satisfied with the notion of mere "mechanism" in animals and not in their case also find it necessary to refer such subjective experience as they have (whether to be dignified as "personal" or not) to a hyperphysical region of being: which unsettles everything again. In the case of man, the plain question that will not be suppressed is, whether Dr. Calderwood thinks that the brain is called into play only when some stimulus is being received from without or impulse is being sent out from within; and is not also somehow implicated in and with every mental process, high or low, so that nothing is at any time going on in the mental sphere without its proper cerebral concomitant. If he does so think, it is perhaps enough to say that he will hardly win credit at this time of day with either psychologist and physiologist, on the one hand, or with philosopher, on the other. Alike in regard to phenomenal facts, subjective and objective, and from the point of view of metaphysical interpretation, the kind of dualism which he seeks to revive gives little rest to the sole of the foot.

The Unity of Nature. By the DUKE OF ARGYLL, Author of *The Reign of Law, &c.* London: Strahan, 1884. Pp. xv. 571.

The author, having intended to follow up the chapter on "Law in Politics" in his *Reign of Law* (1866) with a concluding chapter on "Law in Christian Theology" which should involve a reference to some of the most fundamental facts of human nature, found the subject too serious to be so disposed of, and has in all the intervening years been occupied with but a part of the preliminary investigation: at least the present volume which traces "the connexion between the Reign of Law and the ideas which are alike fundamental to all Religions and inseparable from the facts of Nature," seeks only "to establish some method of inquiry and to find some sure avenue of approach" to the question beyond. Parts of the subject have been separately treated from time to time, but are now fused into a connected whole; the attempt to define man's place in or in relation to nature having interwoven with it an argument for the trustworthiness of the human faculty of knowledge by which the inquiry has to be pursued. Content with a doctrine of Relativism, which is however very different from the current philosophy of Nescience, the author would include man within the unitary scheme of nature, and accepts with a certain boldness some implications of the position which others are fain to deny; but at the same time, as the result of an investigation into the moral side of human nature, he finds man to be after all "The Great Exception," with possibilities of degradation, in the exercise of rational faculty, from which every other living thing is exempt. He is thus led to contest the prevailing scientific assumption that savage life at the present time gives indications of the prehistoric condition of the human race; also current views as to the origin and development of Religion. Mention may be made of the brightly-written discussion on Animal Instinct in ch. 3. It is pertinently urged at p. 92 against the 'lapsed-intelligence' theory of instinct that "if the habits and powers which are now purely innate and instinctive were once less innate and more deliberate, then it will follow that the earlier faculties of animals have been the higher and that the later faculties are the lower in the scale of intelligence".

Leibniz. By JOHN THEODORE MERZ. "Philosophical Classics for English Readers." Edinburgh and London: Blackwood, 1884. Pp. viii. 216.

In this discussion of the character of Leibniz and the spirit of his philosophy, the author has endeavoured to confine himself as much as possible to those points in the life and doctrine which cannot be easily gathered by a perusal of Guhrauer's biography, of the principal works of the philosopher himself, or of the well-known historical treatises of Ueberweg, Kuno Fischer, Erdmann and Zeller. Supposing these to be of easy access, he hopes that those who have not read them may be better prepared by this volume to do so, and that those who have read them may find something in it which the larger works did not readily supply. The treatment falls into two parts: (1) "Leibniz's Life and Genesis of his Philosophy" (pp. 1-134); (2) "The Philosophy of Leibniz" (pp. 135-216).

Lectures on the Philosophy of Law, designed mainly as an Introduction to the Study of International Law. By WILLIAM GALBRAITH MILLER, M.A., LL.B., Lecturer on Public Law (including Jurisprudence and International Law) in the University of Glasgow. London: Griffin, 1884. Pp. xv. 432.

As this book, departing from the common English usage, professes to deal with Jurisprudence "from the metaphysical point of view," we hope to return to it in a future number. Besides enlarging upon the "Utility of Philosophy" in his Introduction, the author takes distinctively philosophical ground in at least three (out of the thirteen) lectures—(1) "Law and Metaphysic," (12) "Retrospect of the Development of Law through the [Kantian] Categories," (13) "Law, Morality and Religion"; and also finds his profit in the use of philosophical speech throughout.

An Examination of the Philosophy of the Unknowable as expounded by Herbert Spencer. By William M. Lacy. Philadelphia: Lacy, 1883. Pp. iv. 235.

"To the scheme of nescience" the author opposes "the doctrine that we are capable of realising something of the nature of things occupying the region outside of consciousness. It is not meant by this that immediate knowledge of anything not present in consciousness is possible. No one is more firmly convinced than" the author "that there can be no consciousness, strictly so-called, of what is beyond consciousness. But that there can be genuine thought of something not within consciousness, is an independent proposition, and the one here urged as true." "To the issue the doctrine of Evolution is not a party." The Philosophy of the Unknowable "is not indispensable to the Philosophy of Evolution, but is rather a complication from which that philosophy should be glad to extricate itself. That evolution is only a law of appearances, not a law of things, is a thought fraught with disheartenment and burdened by a weight of complex subtleties. No evolutionist should harbour sentiment repugnant to the tenet that realities are the subject-matter of the process of evolution and of the Evolution Philosophy."

Common Sensibles: Die Gemein-Ideen des Gesichts- u. Tastsinns nach Locke u. Berkeley u. Experimenten an operirten Blindgeborenen. Von Dr. Theodor Loewy. Leipzig: Grieben, 1884. Pp. 70.

This is a careful study of the early modern treatment of the question of *κοινὰ αἰσθητά* first signalised by Aristotle. The author, regarding Locke as the proper founder of psychological analysis in modern philosophy and recognising the immense stride in advance of his predecessor taken by Berkeley, compares their doctrines of sight and touch as to how far these two senses yield common elements of perception. He notes that, while Hobbes, in a merely passing reference to the subject, continues to speak, with Aristotle, of common sensibles, but confines them within the field of sight and touch, Locke, in other language than Aristotle's, but within Hobbes's narrower limits, expressly raises anew the old question by asserting that simple ideas of space or extension, of figure and of rest and motion are got by both sight and touch. How Locke's very unsatisfactory account of these "ideas" is contradicted by the better psychological doctrine implied in his references to Molyneux's problem introduced into the second edition of the *Essay*, is set forth at length. The author then passes to the exposition of Berkeley's greatly more developed theory of sight and touch, and brings clearly into view the circumstance that this theory, disposing as it does utterly of Locke's version of the doctrine of common sensibles, obtained experimental verification after being wrought out originally by way of speculation. A final section (pp. 62-70), after citing the earlier experimental cases from Cheselden's (1728) onwards to Nunnely's (1858), adds a short account of later ones observed by Hirschberg and von Hippel and reported in *Gräfe's Archiv*, 1875, 76. In the author's view, all of them, "in spite of many discrepancies, yield the result that congenitally blind subjects on obtaining sight by way of operation do not at first recognise by sight forms which they have previously learnt to distinguish sufficiently by touch, also do not at once distinguish form even visually."

Die Philosophie als Idealwissenschaft u. System. Eine Einleitung in die Philosophie. Von J. Frohschammer, Professor der Philosophie in München. München: Ackermann, 1884. Pp. 98.

A plea for the continued independent existence of Philosophy—as distinct on the one hand from the so-called exact and positive sciences, and not to be resolved into mere theory of knowledge on the other, but to be upheld as aiming at systematic explanation of the world from a single principle. The author's principle is the Phantasy (at once objective and subjective) which he has expounded and defended in a series of works previously noticed in these pages (see especially MIND VII., 398). It is, he here again contends, a universal living and fruitful principle, not reached by abstraction from the special sciences, but open to direct observation and so fitted to yield a peculiar science of ideal truth, which is Philosophy.

Katechismus der Psychologie. Von FRIEDRICH KIRCHNER. Leipzig: Weber, 1883. Pp. viii. 292.

This is one of a long series of Catechisms (mostly illustrated) bearing upon the Sciences, Arts and Industries, to which the author has previously contributed the pieces dealing, respectively, with History of Philosophy, Church-history, Ethics and Logic. Otherwise a somewhat versatile writer on philosophy and religion, he has here produced, within the compass of a small and cheap handbook, a rather remarkable treatise on his subject. While treating with intelligence and considerable independence the topics of scientific psychology as they are now generally recognised, he has been able also to discuss to some purpose the metaphysical question of the nature of mind, with the relations of mind and body; and, while giving useful references to the most recent as well as earlier psychological literature, he finds room for an express section of no less than 30 pp. on the history of the science from its first beginnings in Greece. Even the pathological side of mental life has not been overlooked, having 12 pp. allotted to it at the end. The whole work is more thoroughly done than anyone would suppose from its width of range, and it cannot be read without instruction even by a more advanced class than the elementary students for whom it is in the first instance intended. In the properly psychological Part (following upon an Introduction, pp. 1-47, and Part i., "Das Wesen der Seele," pp. 48-139), the order of topics is, General View, Sensations, Movements, *Vorstellen*, Feelings, Affections, Impulses, Desire, Willing, Freedom of Will, Mental Diseases.

Geschichte der Psychologie. Von Dr. HERMANN SIEBECK, Professor der Philosophie an der Universität Giessen. Erster Theil, Zweite Abtheilung: "Die Psychologie von Aristoteles bis zu Thomas von Aquino". Gotha: Perthes, 1884. Pp. xi. 531.

The author, who has passed, since he published the earlier section of his work in 1880, from Basel to Giessen, has now completed in this second section the first of the three Parts into which the whole will be divided. His design, as was previously mentioned (MIND XXI., 150), is to separate out, as far as possible, from history of philosophy in general the story of the progress of psychological inquiry in particular, looking to the position which psychology has won or is winning as special science. Now that he has traced out the whole course of Ancient Psychology with its influence as protracted through the Patristic period to the culminating point of Scholasticism, it becomes possible to estimate with effect the manner and results of his investigation, and this we hope to do in a future Number. Meanwhile it should be said that the present section confirms and deepens the impression of thoroughness of treatment given by the former one. The general subject of the volume is "The development of Psychology as philosophical science under the head of Aristotelianism"; its foundation as "philosophical discipline" by Socrates and Plato having been already delineated. The treatment is disposed under the four heads: (1) Psychology of Aristotle (pp. 3-127); (2) Monistico-naturalistic Psychology, after Aristotle (pp. 128-296); (3) Spiritualistic reaction against Naturalism (pp. 297-357); (4) Ancient Psychology under the influence of Christian thought (pp. 358-476). The sub-head Scholasticism (pp. 401-76), while covering the Realistic movement as far as Thomas, leaves the beginnings of new inquiry, by Roger Bacon, by the Nominalists, as also by Duns Scotus, to be considered in connexion with the following period, fixed by the author to end with last century, as the subject of his Part ii.; while Part iii. will record all the varied psychological activity of the present century.

Kant's Theorie der Materie. Von AUGUST STADLER. Leipzig: Hirzel, 1883. Pp. ix. 268.

The author, who in 1876 published one of the best pieces of newer Kantian work, *Die Grundsätze der reinen Erkenntnisstheorie in der Kantischen Philosophie* (Hirzel, pp. 158), now attempts "to set out the main ideas of Kant's *Metaphysische Anfangsgründe der Naturwissenschaft* in such a way as that all the difficulties that admit of solution may solve themselves". In spite of the earlier proofs given by Kant of familiarity with physical conceptions, the treatise has been little regarded or has been set aside as of no scientific value. What Dr. Stadler here seeks to show is how strictly the theory of matter which it contains is related to the fundamental doctrine of Critical Idealism. Its value will then be rated according to the importance that is attached to philosophical insight. The work of exposition and commentary is done with admirable thoroughness, and may be said to bring the treatise for the first time completely within range. Dr. Stadler does not overlook the merits of Professor Watson's summary of the treatise in *Kant and his English Critics.*

Erläuterungen zu Kant's Kritik der reinen Vernunft. Von Dr. ALFONS BILHARZ. Wiesbaden: Bergmann, 1884. Pp. xvi. 366.

This work falls into three parts: (1) "The *K. d. r. V.* in a nutshell" (pp. 1-128); (2) "Common Human Understanding *v.* School-philosophy" (pp. 130-56); (3) "The *K. d. r. V.* stript of its leaves" (pp. 159-366). The final critical process of *Zerblätterung* follows, one by one, the heads of the expository section, which is well and carefully done. The author, who has previously sought to found "a real natural philosophy" in a work entitled *Der Heliocentrische Standpunkt der Weltbetrachtung* (Cotta), formulates against Kant the general charge of having failed to carry out fully his thought of working in philosophy a complete revolution like that wrought by Copernicus in astronomy. What Kant accomplished in divesting the object of its sense-forms, referring these to the subject, and then pronouncing the real object or *Ding-an-sich* unknowable, was no more than as if Copernicus had transferred himself in imagination to the fixed centre of the earth from its moving surface. The proper analogue of the heliocentric point of view in the theory of knowledge is the truly objective as opposed to the subjective position—that from which the true object can be reached in thought, or, in other words, is understood to be covered by the subjective notion of object.

Il Teismo filosofico cristiano teoricamente e storicamente considerato con ispecial riguardo a S. Tommaso e al Teismo Italiano del secolo XIX. Per PASQUALE d' ERCOLE, Professore ordinario di filosofia nell' Università di Torino. Parte prima: "Le Contraddizioni e le infondate Dimostrazioni del Teismo". Torino: Loescher, 1884. Pp. xv. 700.

In this volume the author works out one half of an extensive scheme;

and will complete the other half in a second volume to appear in the course of this year. The whole scheme falls into four sections: (1) a general delineation of the principles of philosophical Theism as put forward by the Christian Fathers and Schoolmen; (2) an appreciation of its theoretic principles in respect of their intrinsic truth or falsehood; (3) a consideration of the historic *raison d'être* of Theism; (4) an examination of the particular form of Theism propounded by the Italian philosophers (Rosmini, Gioberti) of the present century. The author, in limiting the discussion to the philosophical Theism of Christian thinkers, specially Italian, whether of recent times or of the Scholastic period (represented chiefly by S. Thomas, who has been brought again into more credit than ever by the action of the present Pope), has obviously in view the practical exigencies of his time and country; but he has written, in the present volume, a book of undeniable philosophic importance, displaying at once wide historic erudition and intimate acquaintance with the results of modern inquiry, also no little independence of thought. Of the two sections making up the volume, the expository one, occupied more with the Schoolmen than the Fathers, is comparatively short (pp. 18-77). It is in the critical section, where he brings the scholastic doctrine face to face with modern philosophy along its whole course, that the author gives himself free rein. The criticism is disposed in two parts: the general principles of Theism being first considered in themselves; and next their scientific systematisation in natural theology, theistic metaphysic, logic, cosmology, angelology and anthropology, psychology, ethics and eschatology. Theistic psychology occupies pp. 422-526, and the criticism turns upon (1) the origin of the soul, (2) the duality of substances in man, (3) the relation of soul and body, (4) psychophysical phenomena. The eschatological questions of immortality and bodily resurrection are exhaustively treated from p. 545 to p. 693. The conclusion to which the author comes as the result of his whole survey is that the principles of *philosophical* Theism are at no point demonstrated and are at variance both with reality and with themselves. He is forward, however, to draw the distinction between philosophy and religion, reason and faith, and promises to enlarge upon this in his remaining volume.

Other Books, &c., received :—

Evolution (as taught), a Myth illusive and degrading, London: Ballantyne, Hanson, pp. 254.

C. Haddon, *A Law of Development*, London: Haddon, pp. 48.

G. H. Scribner, *Where did Life begin?* New York: Scribner, pp. 64.

Clavis Rerum, Norwich, Conn.: Robinson, pp. 142.

P. Piper, *Schriften Notker's u. seiner Schule*, Bde. ii., iii., Freiburg i. B. u. Tübingen: Mohr, pp. 644, 415.

F. Koegel, *Die körperlichen Gestalten der Poesie*, Halle: Schwetschke, pp. 46.

C. Menger, *Die Irrthümer des Historismus in der deutschen Nationalökonomie*, Wien: Holder, pp. 87.

J. Volkelt, *Ueber die Möglichkeit der Metaphysik*, Hamburg, u. Leipzig: Voss, pp. 40.

J. Bergmann, *Ueber den Utilitarianismus*, Marburg: Elwert, pp. 33.

W. Preyer, *Specielle Physiologie des Embryo*, 1te Lief., Leipzig: Grieben, pp. 160.

IX. CORRESPONDENCE.

In Mind XXXII. Mr. J. Venn reviews an article of mine on "A New Algebra of Logic" in *Studies in Logic* by Members of the Johns Hopkins University. In the course of this review he gives my solution of a certain simple problem, and then proceeds to give what he calls "the solution as it might be worked out on Boole's plan". He gets as a conclusion, "All d is either a or b or c". This he says is in reality the same as mine, which, relieved of a slight redundancy, is "There is some b or a, or else all d is c". Now, every reader must have seen that these two propositions are far from being the same. It seems to me worth while therefore to point out where the error lies, especially since it is a fundamental one, and moreover vitiates Mr. Venn's treatment of hypothetical propositions in his *Symbolic Logic*.

Mr. Venn says that he considers $\gamma\bar{\delta}(1 - \alpha\beta) = 0$ "to exactly express symbolically" the hypothetical proposition 'If no α is β all γ is δ'; "for it expresses the fact that when $\alpha\beta = 0$ (*viz.*, No α is β) then $\gamma\bar{\delta} = 0$ (*viz.*, All γ is δ)". Of course, no one questions the fact that $\gamma\bar{\delta}(1 - \alpha\beta) = 0$ (which Boole would have read 'All γ which is not δ is both α and β') implies the hypothetical proposition which Mr. Venn considers to be its "exact" meaning; but it implies 8189 other hypothetical propositions of the same kind. For Mr. Venn's principle of interpretation, generally expressed, seems to be as follows: If $X = PQ$ and P and Q contain no logical factor in common, then $X = 0$ means 'If $\bar{Q} = 0$ then $P = 0$'. Implies it of course, but it implies as well 'If $\bar{P} = 0$ then $Q = 0$,' and also a similar pair of hypothetical propositions for every other way of separating X into two logical factors prime to each other. Thus $\gamma\bar{\delta}(1 - \alpha\beta)$ contains four class-symbols, and has, when developed, three aggregant terms. It has therefore $2^4 - 3$ logical prime factors, *i.e.*,

$$\gamma\bar{\delta}(1 - \alpha\beta) = (\alpha + \bar{\beta} + \bar{\gamma} + \bar{\delta})(\alpha + \bar{\beta} + \gamma + \bar{\delta})(\alpha + \bar{\beta} + \gamma + \delta) \quad . \quad . \quad .$$

There are thus $2^{12} - 1$ ways of separating $\gamma\bar{\delta}(1 - \alpha\beta)$ into two logical factors prime to each other, and hence $2^{13} - 2$, or 8190, hypothetical propositions which may be inferred from $\gamma\bar{\delta}(1 - \alpha\beta) = 0$; but even all these do not express its full logical content.

The problem above mentioned is as follows:—"What may be inferred independent of x and y from the two premisses 'Either some a that is x is not y, or all d is both x and y,' and 'Either some y is both b and x, or all x is either not y or c, and not b'?" These two disjunctive propositions are of course equivalent to the two hypothetical propositions 'If all a that is x is y, then all d is both x and y,' and 'If no y is both b and x, then all x is either not y or c and not b'. Mr. Venn expresses these as follows:—

$$d(1 - xy)(1 - ax\bar{y}) = 0,$$
$$xy(1 - c\bar{b})(1 - bxy) = 0,$$

and then reduces them to the simpler forms,

$$d(x\bar{y}\bar{a} + \bar{x}) = 0,$$
$$xy\bar{b}\bar{c} = 0.$$

Eliminating x and y he gets the conclusion,

$$d\bar{a}\bar{b}\bar{c} = 0.$$

This conclusion he reads, as Boole would have read it, 'All d is either a or

b or c'. But this is by no means the valid conclusion from the premisses of the problem.

Mr. Venn's error lies in the fact that his symbolic statement of the first premiss may stand equally well for 2045 other hypothetical propositions, looking at it from his own point of view. Likewise his statement of the second premiss may stand equally well for 32,765 other hypothetical propositions. Lastly, his symbolic conclusion $d\bar{a}\bar{b}\bar{c} = 0$ may stand for 32,766 different hypothetical propositions when interpreted according to his peculiar method. One of these hypotheticals is the proper conclusion from the premisses of the problem, since his symbolic premisses imply the premisses. It would have been remarkable if Mr. Venn had been able to tell which of the 32,766 is the correct conclusion. It is still more remarkable that he did not read $d\bar{a}\bar{b}\bar{c} = 0$ as a hypothetical at all, but gives the Boolian interpretation of it. My conclusion, whose accuracy he does not impeach, shows how he might have read $d\bar{a}\bar{b}\bar{c} = 0$ so as to get the proper conclusion from the premisses of the problem, *viz.*, by dividing $d\bar{a}\bar{b}\bar{c}$ into the two logical factors $\bar{a}\bar{b}$ and $d\bar{c}$, and equating to zero the negative of $\bar{a}\bar{b}$ as the antecedent and equating to zero $d\bar{c} = 0$ as the consequent. Thus we have 'If $\bar{a}\bar{b} = 0$ then $d\bar{c} = 0$,' that is, 'If there is no a nor b, then all d is c,' or 'Either a or b exists, or all d is c'.

In Mr. Venn's reprint of my solution there is a typographical error. The term dx should read $\bar{d}\bar{x}$.

O. H. MITCHELL.

On the main point in question, *viz.*, the inadequacy of the expression $\gamma\bar{\delta}(1 - a\beta)$ to express the proposition 'If no a is β then γ is δ,' I must quite admit the effectiveness of Mr. Mitchell's remarks. But I shall be glad, with the Editor's permission, to explain more fully on another occasion in what sense I proposed it, and to what extent I still think that it may serve such a purpose. I will only remark here that I never in any published work claimed the expression as exactly expressing the customary signification of such hypotheticals, though I certainly thought that it might, in certain cases, express more of such signification than I now see that it could do.

On the fundamental principle which underlies the interpretation of these hypotheticals, *viz.*, the impossibility of expressing particular propositions on a 1 and 0 scheme, I judge that I am entirely at one with Mr. Mitchell. I have urged—as against Boole and Jevons—as strongly as I could that such propositions demand some third symbol, whether it stand in the place of copula or predicate, and cannot be represented with the ordinary notation for universals.

J. VENN.

[Miss Ladd (Mrs. Fabian Franklin), author of another paper in the *Studies in Logic*, also writes, with reference to Mr. Venn's Critical Notice in MIND XXXII., that the second sentence of the quotation on p. 589, which he found obscure, should have had the words "of the product" inserted after the words "partial inclusion".—EDITOR.]

X.—MISCELLANEOUS.

The Clarendon Press will in April publish, in two volumes octavo, an English Translation of the late Professor Lotze's *Logik* and *Metaphysik*, edited by Mr. B. Bosanquet, Fellow of University College, Oxford. These volumes form Parts i. and ii. respectively of the *System der Philosophie*, in which Lotze had intended to give a final and complete exposition of his philosophical views. The projected Part iii. would have dealt with the Philosophy of Æsthetics and with Moral Philosophy; but the author's death shortly after he had entered, as was hoped, on a wider sphere of activity by accepting a Professorship at Berlin, prevented this completion of the *System*. Each of the volumes consists of three books. In the first book, "Of Thought," the *Logic* deals with the traditional forms of notion, judgment, and syllogism, subjecting them to a free criticism, and to an interpretation directed to elucidating their real nature and use. In the second book, "Of Investigation," no distinct system is followed, but the actual methods of proof and of research are analysed in extreme detail and with copious illustration. Book third, "Of Knowledge," approaches the problem (which has so far been kept in the background) of the relation between knowledge as it exists in the human intelligence, and any reality independent of or external to that intelligence. The first book of the *Metaphysic* bears the name of "Ontology," and under this title treats of the modes of being and of inter-connexion which may or must be attributed to a world of things if it is to be thought of as actually existing. The second book, "Cosmology," criticises the specific forms and principles which are the groundwork of our knowledge of nature; such as Time, Space, Motion, and the limits and significance of the mechanical aspect of the world. In the "Psychology" (book third) the author discusses the nature and activities of the soul, and its relation to the principal nervous centres; treating, for instance, of the growth of a sense of locality both in sight and in touch, of memory and association, of attention, and of the initiation of voluntary acts. In this book the author restates with some modifications his well-known doctrine of local signs. The Translation is the work of several persons; it has been carefully revised throughout, and submitted, where it seemed necessary, to mathematical experts. Tables of Contents and Indices have been added.

The Aristotelian Society for the Systematic Study of Philosophy, which has recently had a considerable accession of members, now holds its meetings at the rooms of the Royal Asiatic Society, 22 Albemarle Street, on alternate Mondays, at 8 P.M. as before. At the meeting of Jan. 7th, a communication was read from Mr. Charles Bray "On the Analogy between Sir I. Newton's Universal Spirit and the Force of our Modern Discovery," which was followed by a discussion on the subject of Force. The study of Hume's *Treatise of Human Nature* was commenced on Jan. 21st, by a paper on Part i., "Of Ideas, &c.," by Mr. H. W. Carr; and was continued on Feb. 4th, by a paper on Part ii., "Of the Ideas of Space and Time," by Mr. W. Cockburn; and again on Feb. 18th, by a paper from Mr. A. F. Lake on Part iii., "Of Knowledge and Probability"; the reading of the papers being in every instance followed by a discussion. At the meeting of March 3rd, reserved for original communications, a somewhat elaborate paper was read by Mr. E. P. Scrymgour, Vice-President, on "Perception and Conception, a Vindication of Idealism"; discussion of which occupied the remainder of the evening.

Prof. Hermann Ulrici, who has for so long been one of the most prolific of German philosophical writers and joint-editor of the oldest of German philosophical periodicals, the *Zeitschrift für Philosophie u. philosophische Kritik*, died at Halle on 11th January, at the age of 78.

Frau Olga Plumacher, who contributed the article "Pessimism" to MIND XIII., will publish in the beginning of May, at Heidelberg (Weiss), a work entitled *Der Pessimismus in Vergangenheit u. Gegenwart.*

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. XVII., No. 3. K. Fischer—The Centennial of the *Critique of Pure Reason* (trans.). Goeschel—On the Immortality of the Soul (trans.). Fichte—Facts of Consciousness (trans.). R. G. Hazard—Man a Creative First Cause. W. T. Harris—Philosophy in Outline (i.). Notes and Discussions, &c.

REVUE PHILOSOPHIQUE.—IXme Année, No. 1. H. Spencer—Passé et avenir de la religion. P. Tannery—Critique de la loi de Weber. Ch. Lévêque—L'esthétique musicale en France: v. Psychologie des timbres. Revue générale (E. Gley—Les aberrations de l'instinct sexuel d'après des travaux récents). Analyses et Comptes-rendus. Rev. des Périod. No. 2. P. Regnaud – L'évolution de l'idée de 'briller' en Sanskrit, en Grec et en Latin. F. Bonatelli—Remarques sur les sensations et les perceptions. Guyau—L'esthétique du vers moderne (i.). Analyses et Comptes-rendus. Rev. bibliographique. Varietés (Le programme de l'Agrégation de philosophie en 1884). Rev. des Périod. No. 3. A. Bertrand—Deux lois psychophysiologiques. Guyau—L'esthétique du vers moderne (fin). G. Lechalas—Sur le mode d'action de la musique. Analyses et Comptes-rendus (L. Stephen, *The Science of Ethics*, &c.). Rev. bib. Rev. des Périod.

LA CRITIQUE PHILOSOPHIQUE.—XIIme Année, Nos. 43-52. C. Renouvier—Les raisons physiques de poser l'existence d'un monde invisible (43, 45, 48); La doctrine de l'immortalité conditionelle (51). Ch. Pellarin—La sociologie de M. H. Spencer (45, 46, 51, 52). F. Pillon—Charles Pellarin (47); La psychologie de la France selon Henri Martin (50); La religion laique, religion du Père (50); A propos de la notion du nombre (52).

LA FILOSOFIA DELLE SCUOLE ITALIANE.—Vol. XXVIII., Disp. 3. T. Mamiani—Filosofia estetica: Galleria nazionale d'arte moderna in Roma. P. Ragnisco—La teleologia nella filosofia greca e moderna. A. Macchia—Pensieri di filosofia: Lettera terza ad uno studente di Università. T. Roncone—Lettera a T. Mamiani intorno allo studio della filosofia in Londra. T. Mamiani—Testamento d'un Metafisico.

PHILOSOPHISCHE MONATSHEFTE.—Bd. XX., Heft 1. R. Eucken—Parteien u. Parteinamen in der Philosophie. E. v. Hartmann—Mein Verhältniss zu Schopenhauer. Recensionen u. Anzeigen. Literaturbericht, &c. Heft 2, 3. B. Erdmann—Mittheilungen über Kant's metaphysischen Standpunkt in der Zeit um 1774. R. Lehmann—Ueber die psychologische Grundanschauung der Kantischen Kategorien. Recensionen u. Anzeigen. Literaturbericht. Bibliographie, &c.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—Bd. VIII., Heft 1. E. Laas—Ueber teleologischen Kriticismus. K. Lasswitz—Giordano Bruno u. die Atomistik. A. Marty—Ueber subjectlose Sätze u. das Verhältniss der Grammatik zu Logik u. Psychologie (i.). G. Heymans—Zurechnung u. Vergeltung: Eine psychologisch-ethische Untersuchung (i.). Anzeigen. Selbstanzeigen. &c.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—A CLASSIFICATION OF FEELINGS.

By Charles Mercier, M.B.

I.

Of the various methods of classifying the Feelings that have from time to time been proposed, the majority were originated while the science of psychology was as yet without form and void, and, being therefore out of harmony with the discoveries and developments since attained, they may for the present purpose be disregarded. Recent as is the philosophical work of Sir W. Hamilton, his outline of a classification is wholly obsolete, not more, however, from the advance that has since taken place in our knowledge than from the slight elaboration that he bestowed upon it. Crude as it is, however, his system is remarkable, and in my opinion chiefly meritorious, for the recognition, vague indeed and rather implied than expressed, of the necessity of taking account of circumstances external to the organism in defining and estimating the feelings. Subsequent attempts at classification, including that of Waitz, the intricate and minutely elaborated system of Wundt, and even the more recent effort of Mr. Shadworth H. Hodgson, all appear to me so utterly wanting in the first and most elementary condition of a classification—the condition, namely, that the groups shall mutually exclude one another—as to carry within themselves their own condemnation.

Adopting, as I do, Mr. H. Spencer's *Principles of Psychology* as a profound and masterly exposition of the origin and nature of the normal mind, I must yet dissent from his classification of feelings, on the same ground as I dissented from his similarly-founded classification of cognitions (MIND XXX. 260); and in the former case my disagreement with Mr. Spencer is much more complete and thorough than in the latter. In the classification of cognitions, while dividing the primary groups upon another principle, I was able to accept the degree of representativeness as demarcating the secondary groups from one another; but in the case of the feelings, this principle appears to me altogether inappropriate as a basis of classifying even the minor clusters. Without denying that the classification of feelings according to their degree of representativeness indicates in a vague and general manner certain real differences of composition, it yet appears to me, not only that the arrangement so made is too vague to be of any real service—not only that it fails to discriminate between widely-unlike feelings and fails to group together feelings that are closely allied—but that it is founded on a basis which totally ignores a fundamental principle of Mr. Spencer's own system of psychology. That the principle of representativeness permeates every feeling and varies in each class of feelings, I freely admit; but it does not therefore follow that it forms an adequate basis for classification, any more than it follows that the variations in character of the vessels of a tree form an adequate basis of classifying its parts, because they permeate throughout and vary in each part. That Mr. Spencer's groups "are but indefinitely distinguishable" he candidly admits, and this indefiniteness would by no means of itself invalidate his arrangement, if it could be shown that the things he classifies are correspondingly indefinite in their limitation. But are they? Is the feeling of Anger so indefinitely distinguishable from the feeling of Love; the feeling of Terror so indefinitely distinguishable from the feeling of Triumph; the feeling of Blueness from that of Warmth;—the feeling of Beauty from that of Indignation;—that they must all be accumulated together within the same class, and no attempt be made to regroup them in minor clusters within the class? So startling a result may well arouse suspicion that Mr. Spencer's classification is invalid—a suspicion which develops into assurance when the investigation is pressed home, and when the consequences and implications are brought out in detail. The classification proposed by Mr. Spencer (ii. 514) is as follows:—

> "*Presentative feelings*, ordinarily called sensations, are those mental states in which, instead of regarding a corporeal impression as of this or that kind, or as located here or there, we contemplate it in itself as pleasure or pain: as when inhaling a perfume.
>
> "*Presentative-representative feelings*, embracing a great part of what we commonly call emotions, are those in which a sensation, or group of sensations, or group of sensations and ideas, arouses a vast aggregation of represented sensations; partly of individual experience, but chiefly deeper than individual experience, and, consequently, indefinite. The emotion of terror may serve as an example. Along with certain impressions made on the eyes or ears, or both, are recalled into consciousness many of the pains to which such impressions have before been the antecedents; and when the relation between such impressions and such pains has been habitual in the race, the definite ideas of the pains which individual experience has given, are accompanied by the indefinite pains that result from inherited experience—vague feelings which we may call organic representations.
>
> "*Representative feelings*, comprehending the ideas of the feelings above classed, when they are called up apart from the appropriate external excitements. The feelings so represented may either be simple ones of the kinds first named, as tastes, colours, sounds, &c.; or they may be involved ones of the kinds last named. Instances of these are the feelings with which the descriptive poet writes, and which are aroused in the minds of his readers."

So that, according to this classification, feelings so different as those of Anger, Love, Beauty, Contempt, Perplexity, and Fear—all of them feelings "in which a sensation or group of sensations, or group of sensations and ideas, arouses a vast aggregation of represented sensations"—belong to the same class—that of Presentative-representative feelings. Feelings so different as Blueness, Triumph, Saltness, Hatred and Hardness, if remembered, and not called up by any appropriate external excitement, belong to the same class—that of Representative feelings. But a feeling of Anger arising in the presence of a detested person, and the same feeling arising from the remembrance of him, are classed in separate groups—the one is a Representative feeling, the other is Presentative-representative.

Mr. Spencer finally includes under the head of

> "*Re-representative feelings* . . . those more complex sentient states that are less the direct results of external excitements than the indirect or reflex results of them. The love of property is a feeling of this kind. It is awakened not by the presence of any special object, but by ownable objects at large; and it is not from the mere presence of such objects, but from a certain ideal relation to them, that it arises. It consists, not of the represented advantages of possessing this or that, but of the represented advantages of possession in general—is not made up of certain concrete representations, but of the abstracts of many concrete representations; and so is re-representative."

This group is then a higher group than any of the preceding, and includes feelings of a different class, excluding of course the feelings belonging to the groups below. But the description that Mr. Spencer gives of the constitution of these feelings is exactly applicable to some at least of the feelings in the inferior classes. To guard against any possibility of misrepresenting Mr. Spencer, I will take his own example of the Presentative-representative class—the emotion of Terror—and ask if his description of a Re-representative emotion is not strictly applicable to it.

When a child enters a dark room alone, is it not a fact that the terror which it feels is "awakened not by the presence of any special object but by terrifying objects at large"? Is it not true that "it is not from the mere presence of such objects, but from a certain ideal relation [of accessibility] to them that" the terror arises? Does not the terror consist, not of the represented injury inflicted by this or that, but of the represented feelings of injury in general; is it not made up, not of certain concrete representations, but of the abstracts of many concrete representations; and is it not so re-representative? If this is a true description of the constitution of the feeling of terror, and it is difficult to perceive a flaw in it, what becomes of the distinction drawn by Mr. Spencer between feelings of the Presentative-representative class, and those which are Re-representative? And if, on the other hand, it is not a correct description, yet it must be acknowledged to be so close an approximation, that a classification whose primary groups are divided by such subtle differences is for practical purposes unworkable. While, therefore, as already admitted, the principle of representation, in common with the quality of pleasure or pain, does no doubt indicate an actual element which pervades every class of feeling and varies in each, yet the classification founded on it fails at every point at which it is brought to the test; and this collapse of the classification is sufficient proof of the inadequacy of the principle on which it is founded.

The impracticable character of Mr. Spencer's classification of feelings seems to me, however, to be the most cogent evidence of the truth and of the value of his system of psychology; for it demonstrates that when that system is departed from, not even Mr. Spencer himself can succeed in constructing a stable edifice on any other foundation. The classification that he has raised with such care is built upon sand, and falls to pieces before the first gust of criticism. It is true that his classification of feelings, unlike his classification of cognitions, is not opposed to any definite statement that he has made with regard to them; but this is because he gives no direct exposition of the nature of feeling. He does not specifically state of Feeling, as he states of Intelligence, that it is a feature in, or a portion of, the correspondence between the organism and its environment. He does, however, allege that "the several grades of mind and its component faculties are phases in the correspondence and factors of the correspondence," and again he speaks of "all mental phenomena" as incidents in the correspondence —expressions which must be held to include feelings. Apart however from any formal admission, no one who is familiar with Mr. Spencer's *Principles of Psychology* can doubt for a moment that Feeling as well as Intelligence is to be considered as "a phase in, or a factor of, the correspondence" between the organism and its environment. If Feeling and Thought grow from a common root and are inseparably involved, as Mr. Spencer shows them to be; and if in their development they become more and more closely interconnected, until at last they are well-nigh indistinguishable, as may be maintained; and if Intelligence, one of these two co-ordinate factors, is expressible in terms of the correspondence between the organism and its environment, then Feeling, the other co-ordinate factor, *must* be similarly expressible. If Life in general, and if Mental Life in particular, can be expressed in terms of the correspondence, then, since the whole includes the part, each and every factor of Mental Life can be so expressed. That one such factor can be so expressed, Mr. Spencer argues at great length and with irresistible force. That the other factor can be similarly expressed is my contention.

Mr. Spencer's treatment of this subject is the more remarkable, since Prof. Bain had already published an arrangement of feelings, in which, without any acceptance of Mr. Spencer's views, he yet formally takes account of external circumstances, not indeed in a definition or enunciation of feeling, but as determining the arrangement of feelings. So that we have this remarkable state of things—that Mr. Spencer, the chief exponent of a Realism, which, if "transfigured," is rather more than less stringent and widely applicable than the old Realism, classifies feelings from a standpoint mainly subjective; while Prof. Bain, who repudiates Mr. Spencer's system, is driven by stress of logical emergency to adopt in practice his fundamental principle, and to arrange the feelings with reference to the external circumstances with which they correspond.

While the merit of abandoning the subjective standpoint and of classifying the feelings with some reference to external circumstances, belongs unquestionably to Prof. Bain, yet he admits these circumstances not so much as a fundamental factor of classification as for incidental and collateral purposes, and his classification makes no attempt at detailed completeness. With his customary philosophical candour, Prof. Bain admits the imperfection of his arrangement, and goes on to express the opinion that the difficulty of expounding the Emotions in a strict order of sequence is permanent and insuperable. "Begin where we will," he says, "as we can only take one source at a time, we must anticipate what is to follow. The only thing to be done is to recognise the fact, and also its consequence, namely, that there is no one absolutely preferable arrangement." In so far as this conclusion refers to an arrangement in serial order, it is no doubt necessary and inevitable. But what is the obvious implication? That since a serial arrangement is impossible therefore no arrangement is possible? Surely not. Two generations ago, the same permanent and insuperable difficulty was experienced, by the botanists and by the zoologists of that day, in the serial arrangement of vegetable and animal forms. So long as they stood still and kicked against the pricks, so long did science stand still with them, and when the impracticable character of such an arrangement was recognised and admitted, the first step was taken in the circumvention of the difficulty and towards a classification, non-serial indeed, but based upon fundamental likeness and differences, and in accordance with genealogical affinities. And similarly we may hope, nay, we may sanguinely expect, that the recognition, thus formally declared by Prof. Bain, of the impossibility of arranging the feelings in linear sequence, heralds the abandonment of all attempt at such an arrangement, and the construction of a classification according to those fundamental properties which they have acquired from the source and in the process of their development. That such a classification alone can express the true relations of the feelings to one another, is demonstrated by reason and enforced by analogy; and that our knowledge is ripe for the attempt is sufficiently indicated by Prof. Bain's declaration.

From what has been said it will be already apparent, that the classification of feelings that is here proposed, is founded, not on any distinctions between the qualities of feelings as subjectively viewed—an aspect to which belong such distinctions as those between Appetites, Desires, and Affections

(Reid); as that between the Subsidiary Faculties and the Elaborative Faculty (Sir W. Hamilton); that between Sensual Feeling and Intellectual Feeling (Kant); that between Harmony and Conflict (Herbart); that between Formal Feelings and Qualitative Feelings (Waitz); those between Affections, Moods, and Passions (Wundt); those between Direct, Reflective, and Imaginative Emotions (Hodgson); and it may be added, that between Representative and Re-representative Feelings;—but is based, like the classification of Cognitions previously proposed, on variations of the correspondence between the organism and its environment; of which correspondence Feeling is a cardinal factor.

The term Feeling, like the term Cognition and several other terms used in psychology, is used in two distinct senses. It is used to express a process, and also to express the result of that process. Just as Cognition may mean either the process or act of cognising or the state of mind remaining on the completion of this act, so may Feeling be understood either as the process of feeling or the state of mind resulting from the process. It is in the latter sense that the term will be most used here, and the context will show clearly when the other meaning is implied.

Expressed in terms of the correspondence, the process of Feeling is the correspondence of states in the organism with interactions between the organism and the environment; and the states so corresponding are the individual Feelings. The correctness of this expression I must ask the reader to take upon trust for the present. If he will accept it provisionally for the sake of convenience, I shall hope eventually to secure his permanent adhesion, but the arguments and evidence necessary to establish it are far too extensive to be introduced parenthetically in this place, and will require separate treatment. Evidence that the expression is imperfect will arise at once, but the same evidence will indicate the qualifications that must be attached to it, and when they are added it will be found, I believe, to cover the facts with as much accuracy as our language admits of.

If Feeling is the state in the organism which corresponds with an interaction between the organism and the environment, then Feeling must vary as this interaction varies, and it must be possible to obtain a classification of feelings from a classification of the actions.

If we take this principle as a basis of classification and apply it to Feeling as a whole, planes of cleavage start to view, separating the mass into divisions and subdivisions that appear so coherent internally, and so clearly demarcated externally, as to present a strong *primâ facie* claim for consideration.

Now, what is the most fundamental division that can be made among interactions in general, as occurring between two agents? Manifestly that according to the way they are begun. Such an action may be begun by one agent, or by the other, or by both together; and manifestly the way in which it was begun will affect and modify the whole of the remainder of the action. An interaction between the organism and the environment may be initiated by the environment, or by the organism, or simultaneously by both, and the corresponding feelings will fall naturally into three great orders. Feelings of the first order have their root in the sensation of Touch, and its extension Pressure, which corresponds with the most fundamental action of the environment on the organism—the action of mechanical contact. Feelings of the second order have their root in the sensation of Effort, which corresponds with muscular movement—the fundamental form of all actions of the organism on the environment. Feelings of the third order have their root in Resistance, which is manifestly a combination of the other two. While therefore this feeling, as it partakes of the nature of the other two, approaches nearer to both of them than either of them does to the other, yet, inasmuch as it is compound, it differs more widely from them both than they do from each other. What is the nature of this difference? A feeling of Touch and a feeling of Effort do not necessarily combine into a feeling of Resistance when experienced together, as may be seen when the touch refers to one part of the organism and the effort to another. What then is it that the sensation of Resistance corresponds with? It is the *relation* that the two factors in the interaction bear to one another—the relation of the muscular strain to the pressure, or in subjective terms, the sensation of Resistance is the relation of the sensation of Effort to that of Touch or Pressure. But a relation between two feelings is a cognition. Ought we not then to speak of Resistance not as a feeling but as a cognition, seeing that it is a relation between feelings, and corresponds with a relation—that of co-existence between extension and body—in the environment? Whether we so regard it depends entirely upon the aspect from which we look at it. Undoubtedly the state of mind called Resistance is a relation between two feelings, and is therefore, from one aspect, a cognition; but, as Mr. Spencer points out with great clearness, a relation between feelings *is itself a kind of feeling*—the momentary feeling accompanying the transition from one conspicuous feeling to an adjacent conspicuous feeling, and therefore imperatively demands a place in a classification of feelings. The fact that the scheme here set forth necessitates an inclusion of cognitions in the classification of the feelings, so far from militating against it, is actually evidence in its favour. The great difference between feelings and relations between feelings when subjectively viewed is the duration; and I have already shown how, as cognitions become more and more complex, they become more prolonged, so that while every cognition is in one aspect a feeling, this aspect becomes more and more conspicuous as cognition becomes developed. Hence there is the more reason for indicating the position that such feelings occupy at the root of the classification.

The way in which an interaction is initiated, as it is a necessary element in all interactions whatever, is *a fortiori* a necessary element in all interactions between the organism and its environment; and every group of interactions that is constituted on any other principle must necessarily be susceptible of division according to the way it is begun. There is, however, a set of divisions of very different character, which, although they are applicable only to the special group of interactions with which we are now concerned—those between the organism and its environment—are based on a principle that, in reference to these interactions, is of primary importance. They are based on the principle of Evolution.

To announce to a botanist or a zoologist that the classification of plants or of animals ought to conform to their genealogical kinships, and therefore to harmonise with and illustrate the principle of Evolution, would be as idle and superfluous as to persuade an astronomer of the truth of the law of Gravitation. The matter has passed out of the region of discussion. It has become an accepted doctrine—a truism. The great majority of modern psychologists admit that the human organism has come into existence and reached its present condition by a similar process of evolution, and that by this process has originated and developed not only the physical organism but the mind also. Those who admit the development of mind by evolution, should therefore not need, any more than the botanist or the zoologist, a laboured demonstration that the states resulting from this process should be classified in accordance with it. For those who do not admit that the principle of evolution applies to mental phenomena, this paper is not intended. It does not appeal to them; it has no claim to their consideration. But those who do admit the application of evolution to this region of being are committed beforehand to an approval of the basis of my classification. That the details or even the grosser structure are correctly worked out is not claimed, is perhaps not even probable; but it is claimed that evolutionists are logically bound to accept the principle of the classification, and that the burden of disproof lies with those who reject it.

In the classification of animals and plants, the primary divisions are marked out by differences in some fundamental attribute—by the mode of germination in the one case, and by the presence or absence of organs of profound importance, as limbs, bloodvessels, and nervous system, in the other. The division of the primary into secondary groups follows the variation of some attribute of the primary group that is not only of secondary importance, but is, or may be wholly wanting in the other primary groups. The phanerogamic plants, for instance, are divided according as their seed possesses one or more cotyledons—organs that have no existence outside this group. The dicotyledonous plants are classified according to the number of their petals—organs that no other kind of plants possess. The sub-orders of the leguminosæ are determined by variations in the characters of the pod—a form of fruit that is confined to this order. And the classification of animals proceeds in the same way. The inference is obvious. If the feelings have come into existence by the same process of evolution to which plants and animals owe their origin, and if the classification of the latter, following the lines of this process, exhibits certain characters, then it may be expected that the classification of the former, following the same process, will exhibit similar characters. When it is found that the mode of classifying the feelings that is here proposed does exhibit a well-marked similarity to the accepted mode of classifying animals and plants, it may be claimed as an additional indication that the principle on which it is founded is correct.

It may be objected that we have now got two principles of classification, one according to the way the interaction is begun, the other according to its position in the evolutionary scale, and that these two principles are so widely different that the lines of division that they regulate cannot possibly coincide with or even approximate to each other; and this must be admitted, but it does not invalidate the classification. A classification which follows the course of evolution is often and very aptly compared to the structure of a tree. It may be said that a tree forms a solid diagram of such a classification—a diagram in three dimensions. The most general and least differentiated forms are represented by the stem of the tree, and the more elaborate and special forms by the successively diminishing branches. Such a diagram represents accurately the classification of feelings according to the principle of evolution. The other principle of division—that according to the way in which the action is begun—runs, as I have said, through every branch of feeling that is constituted on any other principle, but it does not necessarily destroy the other mode of classification. It may be represented on our diagram by the difference between the bark and the wood—a difference that is perceptible no less in the extremest branches than in the trunk, a difference that permeates throughout and yet leaves the other method of division absolutely unaffected. The analogy may be stretched much further without breaking. For just as the arborescent form is peculiar to the tree, so the division of interactions according to the principle of evolution is peculiar to the interactions between organisms and their environments; and as the division between cortex and interior is common to the tree and all other bodies that are acted on from without, so the division between interactions that are internally initiated and those that are externally initiated is common to all interactions whatever. The parallel may be carried even further. The description of the tree is not completed by the consideration of the parts that are above ground only. There yet remains the root, a part that ramifies in a different direction and in a different manner, and is not open to direct observation. Similarly there is a body of feelings—those constituting the Cœnæsthesis, or the Visceral or Organic Sensations—which correspond with interactions occurring within the organism, and these interactions are not open to direct observation, are connected with the other interactions and are yet distinct from them, and are divisible upon a different method.

There is yet a third general principle in accordance with which feelings may be divided. This is the directness or indirectness of their correspondence with interaction, and, in the latter case, the degree of remoteness from direct correspondence. Feelings which correspond directly with an interaction between the organism and its environment are termed Sensations; those which correspond indirectly are termed Emotions; and when the remoteness from direct correspondence is great, the feeling is in some cases termed a Sentiment. When the correspondence is indirect it would usually be correct to say that the feeling corresponds with a *relation* between the organism and the environment, and this mode of expression will often be used hereafter, but it must be borne in mind that the relation is always a relation of interaction, past, future, or possible, and that it is this element of activity that alone arouses feeling. The feelings of cognition, for instance, which have already been referred to, may properly be regarded as the state in the organism which corresponds with the relation between two such interactions.

Considered in the light of the principle of Evolution, there are two classes of interactions between the organism and the environment which stand out pre-eminently before all others in their importance and in their antiquity. These are the interactions which primarily affect the conservation of the organism, and those which primarily affect the perpetuation of the race. Of course every interaction between the organism and the environment must necessarily affect to some extent, however slightly, its conservation, and must affect in some degree, however remote, its ability or tendency to perpetuate the race; but we speak here of interactions only as they primarily subserve or oppose these two great ends. Compared with the interactions that affect these two great and primordial ends all others are but of yesterday, although even the following group dates from a period long prior to that at which the race attained to the dignity of humanity. There is little doubt that, long before our ancestors had reached the organisation and status of Man, they lived gregariously, so that for a period which may not include a large section of the whole life of the race, but which is intrinsically very great, each individual organism has been subject, as a member of a community, to a number of interactions affecting the common welfare; of which some are concerned with the environment of the community, and others are concerned with the community itself, regarded as a special (the social) environment of the individual. From interactions that concern the welfare of the organism in common with that of other individuals to those that concern other individuals only is not a long step; and through this class of interactions we pass to those that are neither conservative nor destructive, a somewhat heterogeneous group, comprising all the residue of interactions that are not included in previous classes. Finally there is a class of feelings—the feelings of Cognition—which correspond with a relation between interactions. Classed upon this method, the main groups of feeling will therefore be six in number, corresponding with the main classes of interactions with the environment of which the organism is capable, *viz.* :—

Class I. Those which primarily affect the conservation of the organism;
Class II. Those which primarily affect the perpetuation of the race;
Class III. Those which primarily affect the common welfare;
Class IV. Those which primarily affect the welfare of others;
Class V. Those which are neither conservative nor destructive; and
Class VI. Feelings corresponding with relations between interactions.

Class I.—The first great group of feelings, including *those that correspond with interactions that primarily subserve or oppose the conservation of the organism,* subdivides into two secondary groups, characterised by the way in which the interaction begins. One of the Sub-classes of feelings corresponds with actions that are initiated by the environment, the other corresponds with actions that are initiated by the organism. Each of the secondary groups thus formed is again divided according to the third of the principles already set forth—the directness or indirectness of the correspondence—into two tertiary groups, which we may term Orders. So that of the first great class of feelings four well characterised divisions present themselves for examination. These we may now take in detail, *seriatim.*

Sub-class I. *Feelings that correspond with interactions primarily affecting the conservation of the organism which are initiated by the environment.*

Order I. *The correspondence is direct.*

When thermal undulations impinge upon the surface of the organism; when a body comes in contact with the skin; when a chemical change takes place in a mucous membrane; when sonorous undulations strike upon the tympanum, or etherial undulations on the retina,—in such cases a feeling arises which corresponds directly in duration, in intensity and in volume with the action of the environment on the organism, and such feelings are termed Sensations. Sensations are to a large extent unconditional. If the action takes place the feeling necessarily arises, the bodily structure being supposed normal. The action taking place on what is physiologically the surface of the organism, there is a minimum of opportunity for the introduction of the intellectual element, intelligence arising only when the correspondence between the organism and the environment begins to extend in space. Whatever part cognition plays in the process is therefore subordinate. Feelings of this simple character can exist in the absence of almost every trace of cognition, and where cognition exists, it is in every case secondary to the feeling. These relations to cognition hold true when the feeling is represented as well as when it is presented. In the next order of feelings, in which the correspondence is indirect, we shall find that cognition rises into a position of much greater importance.

Environmentally-initiated Sensations are classified according to the nature of the agent by which they are aroused, as follows:—

TABLE I.

Class I. Sub-class I. Order I.

Self-conservative Environmentally-initiated Sensations.

The agent is

Thermal vibration	of plus quantity, or more ample than that in the organism	Warmth.
	of minus quantity, or less ample than that in the organism	Cold.
Mechanical force	of inappreciable magnitude	Touch.
	of appreciable magnitude	Pressure.
Chemical rearrangement	on the surface	Smell.
	within the surface	Taste.
Aerial undulation	irregular	Noise.
	rhythmical	Sound.
Etherial undulation	of which variations in amplitude correspond with variations in	Light.
	of which variations in rapidity correspond with variations in	Colour.

Little comment is, I think, required upon the above table. Objection may be taken to the expression "inappreciable magnitude" as applied to the mechanical agent with which the feeling of Touch corresponds, for it may be said that if the touch is felt, the force is *ipso facto* appreciated; but I know not how otherwise to express the fact that the feeling of Touch proper depends upon mere contact—upon the application of a force so small as to be virtually unmeasurable. If this term were substituted, an analogous objection might still be offered, for it might be said that the force exerted, for instance by the friction of a hair upon the skin, could be measured by a sufficiently delicate apparatus. The distinction that I have drawn between the action that provokes Taste and that which provokes Smell is not a recognised distinction, but from the following considerations it appears valid. That the processes that give rise to Taste and Smell are closely similar, if not the same, is indicated by the familiar fact that when smell is lost taste is greatly diminished. Smell arises much more rapidly than taste. Unless the sapid substance is unusually pungent or in strong solution, there is not usually any feeling of taste until it has been for some moments in the mouth. Often there is a very distinct interval before taste begins. It is difficult to see any adequate cause for this delay other than the necessity of the sapid substance to penetrate through a certain thickness of tissue before it can reach the nerves of taste; and this penetration or soaking of course requires time. No such delay occurs in the case of smell. In children, in whom the mucous membrane of the mouth is thinner than it is in adults, the feeling of taste arises much more readily, but no such difference exists in the case of smell. The pure tastes—of sweetness, sourness, and bitterness, depend on the action of crystallisable substances, that is, of substances whose distinguishing physical property is the readiness with which they pass through organic membranes. No such peculiarity characterises the bodies that elicit the sense of smell.

Order II. *The correspondence is indirect.*

The second order of environmentally-initiated feelings is that in which the state in the organism which we call feeling corresponds, not with the actual operation of an agent upon the surface of the organism, but with the relation which some circumstance in the environment bears to the organism. The action of the environment on the organism with which the feeling indirectly corresponds being not actual, but removed to a distance in time and space, there can arise in the organism no state answering to such action except by the extension of the correspondence in time and space, and this correspondence is intelligence. If the agent is not directly acting upon the organism, but the feeling corresponds with the relation in which the agent stands to the organism, then for the feeling to arise this relation must first be known. As far as concerns any effect upon the organism, an unperceived relation is nothing. Hence, of feelings of this order cognition forms a part; a subordinate part indeed, but one of integral and even antecedent necessity. So far from being, like feelings of the previous order, unconditional, they are absolutely conditional on a previous process of cognition. A difference in the subjective aspect of the two orders of feelings is also important. The Sensations that have been considered have no inherent quality of pleasurableness or painfulness. Each may be pleasurable under some circumstances, painful under others. The quality of the feeling, when it exists, corresponds not with the nature of the action, but with its degree. A small increase of warmth or coldness is not necessarily either pleasurable or painful. When the degree of change becomes considerable, some degree of pleasure or pain commonly accompanies it. When the change is great there is always pain. The same is true of pressure, of light, and of sound. A small degree of either of these actions is not necessarily either pleasurable or painful. A great increase in the amount of any of these actions is always painful. But in the feelings now to be considered, termed Emotions, the pleasurable or painful quality is not dependent upon the amount of the action, for direct action there is none. The quality of the feeling depends upon an attribute of the circumstance with which the feeling corresponds; and when this attribute is present, however trifling the amount of the feeling, it has a definite quality. When the circumstance is noxious, the corresponding feeling is painful. When the circumstance is beneficent the feeling is pleasurable. It is evident, therefore, that the quality of the circumstance supplies us with a means of dividing into subordinate groups the present class of feelings. Previous, however, to this classification according to the quality of the circumstance, a more important division has to be made depending on its nature. The circumstance in the environment which elicits the feeling may be either a state or a process—either an agent or an event,—and the feelings aroused exhibit a corresponding variation.

TABLE II.

Class I. Sub-class I. Order II.

Self-conservative Environmentally-initiated Emotions.

The feeling corresponds with the relation to the organism of	an Agent in the environment which is cognised as	actively noxious	Antagonistic Feelings.
		passively noxious	Feelings of Repugnance.
		beneficent	Kindly Feelings.
	an Event in the environment which is cognised as	noxious	Grievous Feelings.
		beneficent	Joyous Feelings.

The Antagonistic feelings and the feelings of Repugnance, which have a close affinity, might be grouped together under the name of Antipathetic feelings.

The first of the five groups thus arrived at is the large and important genus of Antagonistic feelings. The feelings belonging to this genus are more numerous, more strongly and distinctly characterised, than those of any other group of corresponding value, and the reason is not far to seek. If the feelings correspond with the interactions between the organism and its environment, and if they have come into existence by a slow process of evolution extending from the dawn of life down to the present time, then the largest and most important group of feelings will be that which corresponds with that group of interactions which in the history of the race have been most numerous and most important. To which interactions this description applies there can scarcely be two opinions. Man, like every other organism, has arrived at his present state of development by the survival of the fittest in a ceaseless struggle for existence that has been in progress for countless myriads of years. During all this incalculable time the circumstance that has been most potent in shaping his organisation, has been the pruning and moulding influence of the adverse conditions against which he has had to struggle; in other words the action of noxious agents in the environment. From this consideration we might predict that the group of feelings corresponding with the action of such agents must be the most important group of the environmentally-initiated Emotions, and when we find that it is so, we may fairly regard the fact as tending to corroborate the naturalness of the classification.

The most fundamental division that can be made of agents of this class refers, it is manifest, to the magnitude of their power with respect to that of the organism. No quality of a noxious agent can be of such importance, or exert so much influence on the state of the organism produced by its proximity, as the relative powers of this agent and of the organism. Since, as has already been pointed out, in feelings of this class the agent is not actually acting upon the organism, but is separated from it by an interval in time and space, it is clear that not only must cognition of the agent precede the occurrence of any feeling, not only must cognition of its noxiousness precede the occurrence of any Antagonistic feeling, but a cognition of the relative power of the agent is also necessary before a feeling of any definiteness can exist. Furthermore, just as the quality of the feeling as Antagonistic depends, not upon the attribute of the agent as it actually exists, but upon its attribute as cognised—a cognition which may be widely discrepant from the truth; so the sub-group, or sub-genus of antagonisms into which the feeling will fall will depend, not on the actual relation which the power of the agent bears to that of the organism, but on the relation that is cognised. To take an example: the feeling of Terror which, I say, arises on the cognition of the accessibility of the organism to a noxious agent of overwhelming power, will not arise unless the accessibility is cognised, nor unless the noxiousness is cognised. But this is not all. Cognition of these relations will determine the arousal of some Antagonistic feeling, but for this feeling to assume the gravity of Terror a further cognition must be added. The power of the agent must be cognised as overwhelming. The concurrence of these three cognitions is a necessary prerequisite to the feeling of Terror. To descend still further into particulars, and to take a case the most unfavourable to the doctrine here advanced: A woman goes into a paroxysm of terror at the sight of a mouse. How are the conditions satisfied in such a case? That the cognition of accessibility is a condition of the feeling is seen in the fact that if the mouse is encaged terror is not felt; or if felt, the chance that "it may get out" is assigned as a reason. That the mouse is believed to be noxious, and that in a high degree, is sufficiently evident. Doubtless, cross-examination might not elicit any precise form of injury to be feared, that is to say, the cognition is not necessarily definite, but its vagueness is sufficiently compensated by its strength, which no amount of argument can overcome. So far the conditions are satisfied, but is the power of the mouse cognised as overwhelming? If not, the scheme falls to the ground; and at first sight it seems very difficult to say that it is. Of course, as far as mere mechanical strength is concerned the supposition cannot be entertained, the comparison is absurd. But the word "power," as used here, includes far more than this. It means capacity of doing injury, which includes the element of unavoidableness. However overwhelming may be the mere mechanical strength of the agent, yet if it is easily escaped, its capability of inflicting injury is limited; and on the other hand, the agent may be weak to insignificance in mere mechanical strength, and yet have other sources of power which render it in the highest degree formidable. Such an agent is a venomous snake; and when it is remembered that the terror inspired by such an agent will be greater the less the means of defence, the smaller the opportunity of escape, and the more rapid the movements of the snake, it becomes apparent that the power spoken of is not necessarily mechanical energy but power to injure, and includes as part of that power the element of unpreventableness or inescapableness. The whole of the qualities may be summed up as degree of noxiousness. Now let us return to the case of the mouse, and observe that, while its power of inflicting harm, should it gain access to the organism, is cognised very indefinitely but still very vividly as considerable, the astonishing rapidity of its movements proves it to possess a power of gaining access to the beholder which is far beyond her ability to prevent or avoid; and thus the degree of noxiousness, which may be regarded as the product of these two factors, is maintained at a very high estimate by the magnitude of the one factor, notwithstanding the moderate value to be attached to the other. As thus defined, the power of the agent is cognised as overwhelming compared with that of the organism, and the doctrine holds good.

Take another instance of the feeling of Terror—the feeling experienced by a child on entering a dark room. There is nothing in the room that can harm the child—no agent in the environment to arouse the feeling. Can the formula be said to apply to such a case? Assuredly it can. True, the room is in reality empty of ought but harmless furniture, but it is peopled thick with terrible things by the child's imagination; and it is the agent that is cognised, not the agent that actually exists, that arouses the feeling. Moreover the child's accessibility to the agents is cognised as a maximum. It cannot see, but it imagines itself as seen, and in comparison with its own helplessness to avoid its unseen foes, their power is conceived as overwhelming.

The relative power of the noxious agent to inflict injury, in comparison with that of the organism to avoid it or to nullify it by counteraction, is of course not precisely measurable. Nor is precise measurement any condition of the feeling. Between agents that, in comparison with the organism are overwhelmingly powerful, and those whose power is by the same standard insignificant, there is an infinite number of degrees, and although the power of any given agent can never be precisely estimated, it is assigned to some more or less definite position in the scale, and the feeling that it arouses occupies a corresponding position. The scale may be broadly divided into five regions. There are agents whose power to inflict harm is cognised as approximately equal to the power of the organism to avoid or counteract them. Above these are those agents whose power is cognised as superior to that of the organism; which again admit of division according as the superiority of their power is cognised as moderate or as altogether overwhelming. Below the middle point of the scale are those agents whose power is cognised as inferior to that of the organism, and these again are redivided according as they are moderately inferior or insignificant. With these five degrees of difference in the comparative power of the noxious agent correspond five groups of Antagonistic feelings.

The inferior groups and individual feelings are marked off from one another by minor differences in the nature of the interaction: by the presence or absence of counteraction on the part of the organism, by the form which this counteraction takes, and by its success or failure; each of these differences in the interaction between the organism and its environment being paralleled by a corresponding difference in the feeling aroused. The detailed classification of the Antagonistic feelings is given in the annexed Table.

If the names of the feelings enumerated in the last column of this table are read in the order there given from above downward, it is at once evident that this is not the order of their affinity. The feelings of Terror and Fear which are so closely allied that they differ in degree only, are separated by feelings so widely different from either of them as Resignation, Desperation and Hope. Similarly the feelings of Revenge and Resentment, which have manifestly a close kinship are separated by feelings so alien from them as Patience and Suspicion. Stubbornness and Sulkiness are widely separated by the intervention of feelings so unlike them as those of Rage, Triumph, and Apprehension. It would be easy to bring these allied feelings together by shuffling the cards a little. If we transpose the second and third columns, and make the primary divisions according to the nature of the reaction and the secondary divisions according to the relative power of the agent, we bring together Terror and Fear, and follow them immediately by Hate, Annoyance and Contempt. Similarly, Resignation, Patience and Meekness would form a separate well-characterised group; and other groups as natural would follow. But on the other hand by this arrangement Terror would be separated from Despair, Hate from Anger and Revenge, Annoyance from Vexation, and other closely allied feelings would have to be placed far asunder. From this it would appear that the classification here proposed is open to the same objection as those that I have rejected—of grouping together things that are widely unlike, and separating widely those that are closely allied. If my aim were to arrange the feelings serially, this objection would of course be valid, and the classification futile; but I have already declared that this is not my aim. So far from it, indeed, I hold that, as Mr. Spencer asserts of the arrangement of animal forms, "such relations cannot be represented in space of two dimensions [even]; but only in space of three dimensions". In a diagram such as that afforded by the table, the serial

TABLE III.

Class I. Sub-class I. Order II. Genus 1: The Feelings of Antagonism.

The feeling corresponds with the relation to the organism of an Agent in the environment which is cognised as actively noxious	and of overwhelming power	and does not elicit counteraction.			Terror.
		and elicits counteraction	which is incipient.		Desperation.
			which is voluntarily suppressed.		Resignation.
			which becomes actual	and is successful.	Triumphant Exultation.
				and is unsuccessful.	Despair.
		but the cognition is uncertain.			Hope.
	and of superior power	and does not elicit counteraction.			Fear.
		and elicits counteraction	which is incipient.		Courage.
			which is voluntarily suppressed.		Patience.
			which becomes actual	and takes a passive form.	Stubbornness.
				and is successful.	Triumph.
				and is unsuccessful.	Defeat.
		but the cognition is uncertain.			Apprehension.
	and of approximately equal power	and does not elicit counteraction.			Hate.
		and elicits counteraction	which is incipient.		Anger.
			which is delayed.		Revenge.
			which is voluntarily suppressed.		Patience.
			which becomes actual	and takes a passive form.	Sulkiness.
				& of moderate intensity.	Rage.
				and extreme.	Fury.
				and is successful.	Victory.
				and is unsuccessful.	Mortification.
		but the cognition is uncertain.			Suspicion.
	and of inferior power •	and does not elicit counteraction.			Annoyance.
		and elicits counteraction	which is incipient.		Vexation.
			which is delayed.		Resentment.
			which is voluntarily checked.		Meekness.
			which becomes actual	and is successful.	"Satisfaction of Success."
				and is unsuccessful.	Mortification.
	and of insignificant power	and does not elicit counteraction.			Contempt.
		and elicits counteraction.			Scorn.

arrangement distorts and dislocates the actual relations of the feelings somewhat as Mercator's projection distorts the relations of land and water on the surface of the earth. Mercator's projection seeks to represent on a plane surface the relations existing on a curved surface,—to reproduce in a diagram of two dimensions relations existing in space of two dimensions; yet how imperfect is the result! Judge, then, of the possibility of representing in space of one dimension relations that require three dimensions for their true exposition.

A fairly adequate concept of the inter-relations of the Antagonistic feelings may, however, be gained, if we conform to the necessary conditions. Let us imagine the most general of the relations that govern the classification of these feelings—the degree of noxiousness or the relative power of the noxious agent—to be represented by a solid stem; and let us suppose this stem to have five nodes, corresponding with the five relations that the cognised power of the noxious agent may bear to that of the organism; the node at the top representing those in which the power of the agent is insignificant and the node at the bottom those in which its power is overwhelming. At each of these nodes the corresponding group of feelings enumerated in the table may be represented as arranged round the stem in what is known to botanists as a whorl; each feeling being represented by a projection, separated from its adjoining fellows by a notch, which will be deeper or shallower according as the difference is more or less pronounced. Now, since there is no abrupt division between those agents that are approximately equal in power to the organism and those that are superior and inferior, nor is there any demarcation between these two groups and those which lie above and below them respectively, it follows that, to make the diagram correspond, we must imagine the projections that we have placed at the nodes to be extended up and down the stem as continuous buttresses, uniting the feeling placed at a node with the allied feelings at the nodes above and below on the same meridian of the stem. The notches will now become grooves and the stem a fluted column. Lastly, since those feelings which relate to an agent of greater power are of greater magnitude than those which relate to an agent of lesser power, they should be represented on our solid diagram by the greater size of the projections which correspond with them. The fluted column will thus become a fluted cone. At the base of the cone a great protuberance will represent the feeling of Terror, which is bounded by, and in some part continuous with, the feelings of Desperation on the one side and of Despair on the other. When we follow this protuberance upward toward the apex of the cone, we find that it gradually merges into Fear, while its neighbours similarly graduate, the one into Courage, the other into Defeat. Followed still higher, Fear narrows first into Hatred, then through Dislike into Annoyance; Courage becomes first Anger and then Vexation; and Defeat becomes modified into Mortification of various degrees. If, instead of noticing the connexions among the feelings, we pay attention to the divisions between them, we find additional evidence that this solid diagram truly represents their relations to one another. For if the buttresses are large and prominent at the base and diminish towards the apex, it is but stating the same fact in another way to say that the divisions between them at the base are deep, and become more and more shallow as they run upwards, until at the apex they disappear. And if we turn from the diagram to the feelings whose relations it represents, we find that the differences between them have a corresponding disposition. Between the Despair that attends a failure to counteract the action of a noxious agent whose power is cognised as overwhelming, and the Triumphant Exultation that follows an unexpected success, the interval is as great as can possibly exist between feelings of the same genus. Between the Triumph that attends success over an agent previously cognised as superior, and the wretchedness of Defeat that attends failure of the counteraction, not only is the difference less than in the previous case, but other things being equal, it is less in exact proportion as the power of the agent is cognised as less overwhelming. When the agent is approximately equal in power the gap between the feeling aroused by success and that aroused by non-success, though still very considerable, is manifestly less. As the agent becomes less and less powerful, the interval between the two sets of feelings aroused by success and by non-success diminishes more and more, until as the agent becomes insignificant the feelings subside into a dead level of indifference. Again, the feeling of abject Terror that accompanies the absence of all effort to resist an overwhelmingly powerful enemy differs very widely from the feeling of Desperation that accompanies the strenuous effort to resist. Between Fear, the homologue of Terror, and Courage, the homologue of Desperation, the interval, though still great, is not so great. When we rise to the next "whorl" of feelings, in which the relative powers of the agent and the organism are cognised as approximately equal, the corresponding feelings of Hate and Anger are still less widely different, and are shown to be so by the comparative ease with which the transition is made from the one to the other. In the succeeding group the feeling of Annoyance which accompanies passivity and that of Vexation which goes with active counteraction are so little different that the terms are often used interchangeably; and when the agent is insignificant the two feelings coalesce into the single state Contempt: of which Scorn is properly only the outward expression.

From these considerations it will, I think, appear that the similarity between the feelings of Hate, Anger, Revenge and Rage in the third group, and between those of Annoyance, Vexation and Resentment in the fourth, so far from telling against the validity of a classification in which they are differently described, actually tells in its favour. Furthermore, I trust that a claim has been made out, not only for the recognition of the Antagonistic feelings as a natural and well-characterised group, but also for the validity and correctness of some such internal structure of the group as that which I have proposed; an arrangement which displays the lateral and cross relations of the various feelings in the group as well as their more obvious kinships.

It will be seen that in the classification proposed each feeling has not only assigned to it a position, but also has its nature stated and defined. In doing so, as in all cases in which terms are taken from the vernacular and applied to the purposes of science, the meaning of the terms at the same time that it is rendered precise is necessarily somewhat altered. It is probable that in some cases a term has been used to connote a feeling not quite the same as that to which it is applied in common use. I can only say that I have tried to bring the expressions as nearly as possible into harmony with what appeared to be the commonly received meaning of the term used; and that, when I have thrust into a definite mould a term which as commonly used has but a hazy significance, I must ask the reader to accept the connotation that I attach to it so long as he is estimating the validity of the classification. Those terms which have in common use a distinct and well-defined meaning that is generally recognised, impose on me the burden of showing that the exposition that I have given of their character is in accordance with this usage. This duty I hope to discharge hereafter, but as it will involve an examination of the feelings one by one, which would not only be out of place in a Classification, but would treble the length of this communication, it must for the present be postponed.

(To be continued.)

II.—THE OBJECT OF KNOWLEDGE.

By Edmund Montgomery.

I.

Happily, investigators of mind are at present generally agreed that, in our philosophical inquiries, we have to start from the data of individual consciousness, as alone immediately cognisable. The question is: What underlies the wide-spread display and endless train of conscious occurrences that, for each of us, make up the world we know? And what is the real meaning of it all?

Genuine Transcendentalism answers: The essence of our being consists in a spiritual organisation or subject, autonomously weaving steady experience out of the ever-changing conscious phenomena; and it all means the more or less adequate understanding of that which eternally and unalterably subsists in a universal consciousness.

Genuine Naturalism answers: The true subject and bearer of the conscious display is that abiding something of ours, which we perceive as our living organisation; and its conscious affections signify to us the recognition of our own relations to the entire economy of sense-compelling influences which we call the world.

Could more diametrically opposite conceptions of human existence and its aims well be framed—psychologically, metaphysically, and ethically? Yet this is actually what we find ourselves driven to by the present developments of our philosophy. We have unambiguously to decide for one or the other of these extreme views. Consistent thinking can discover no compromise. Our being is either wholly natural, or wholly spiritual. It is either a purely intelligible principle, apprehending and elaborating the conscious phenomena and, consequently, in possession of all there is immediately extant. Or it is, on the contrary, that integrant part of nature appearing to us as our living body, and experiencing our world of feeling and thought as affection of its own. It must certainly be either the one or the other. In no way can our veritable being be both together: a spiritual subject constituting experience by dint of its own power, and also an organic subject experiencing its naturally constituted functions. Experience is either exclusively organic, or exclusively hyper-organic.

But by what means does it anyhow become possible? The mental phenomena that make up our experience come to us as a broken sequence of more or less disconnected particulars. What then is the power in us that gathers up all these shifting and vanishing mental fragments, and constructs therefrom an enduring system of knowledge?

And, as knowledge surely means the recognition of a permanently and universally valid consistency of something besides ourselves, what is the true nature of the objective validity thus recognised in knowledge?

These, no doubt, are the main questions on which our controversy has to turn, and by which we shall have to test the respective merits of the two opposite modes of explanation.

First of all, it may be fully granted that there must be dwelling in existence a subject, not itself in its very being the mere succession of mental particulars, but somehow retaining the same as collected experience, and recognising it as such. Even Hume had to postulate some comparatively indelible subsistence in memory of the experienced impressions and their customary agglutinations. But it is quite impossible to imagine, or to conceive in any way, how the subject, which thus experiences by dint of memory or otherwise, can ever have itself resulted from a combination of the experienced particulars. The mental presentations, which are the ostensible material of experience, are in themselves ever-changing and perishing phenomena. If, nevertheless, they are found in some way preserved and united, so as to be capable of reappearing as connected experience, this must certainly be accomplished by a power not themselves.

What kind of agency can it then be, that combines into actual mental presence and methodical order the irregularly appearing and successively lapsing particulars of consciousness; that revivably stores up the memory of departed phenomena, recognising thereafter casual occurrences as fitting into the system of experience, which it has thus put together for itself, and of which it is the enduring and experiencing subject?

Surely, it must be a miraculously active principle, that can snatch up from transitoriness and oblivion the variegated play of fleeting and fading appearances, and construct therefrom the world of steady experience, of which we have knowledge. Whatever this preserving and combining principle may be, it is certain that, as soon as anything is recognised in consciousness, it has already exerted its power on it, has already combined the phenomenal elements—themselves from moment to moment perishing, and has more or less accurately placed the whole vacillating appearance in the unitary and enduring system of experience.

In thus contemplating the full range of power which the combining principle must necessarily possess in order to constitute experience, it seems evident that nothing passively received can at all become definitely conscious. And this brings on the one fundamental assumption in Kant's theory of knowledge to which his transcendental followers cannot possibly assent. Kant believed most firmly that empirical sense-material is given to us from some source outside our own being. Indeed, the main achievement of the *Critick* consists in the presumed assimilation into the conceptual order of such extrinsically "given" material of experience.

Now the truth is, there is no material of cognition given to us from outside. Even physiology teaches unmistakably that everything found in consciousness must be all-through the exclusive property—it might be said the exclusive creation—of the feeling and thinking subject. Nothing whatever can penetrate into consciousness from without, not even through the senses.

It must, therefore, be admitted that Transcendentalists have justly corrected Kant, when they deny that the material of experience flows from an extraneous source into our receptive sensibility. But they are living under a strange delusion if they continue, nevertheless, to look upon themselves as Neo-Kantians. To them the *Critick of Pure Reason* ought to represent hardly anything but a pathetic failure, a vast amount of strenuous exertion bestowed on the elucidation of an erroneous philosophical conception. The methodical aspect of the *Critick* and its serious and scrupulous scientific tenor are certainly very imposing; but what assistance can it render to Transcendentalism?

Allured by Kant's rationalistic, though anthropocentric view, that it is our human *understanding*, *i.e.*, a spiritual principle, that makes nature, idealistic Neo-Kantians fail to see that the entire scheme of the *Critick* falls to pieces if material is not "given" to sense, from which nature can be made. The *Critick* is essentially an account of the means through which the raw-material of sense is received, and transformed into universally valid knowledge.

In his 66th year Kant himself thus summed up the result of his researches: "Only after a laborious examination of all requisite conditions, rendering synthetical propositions *a priori* possible, the *Critick* arrives at the decisive final conclusion—that objective validity cannot be otherwise secured to any concept (or proposition) than through reference to corresponding sensible presentation (*Anschauung*). Consequently, beyond the boundaries of sensible manifestation, and therewith of all possible experience, there can be absolutely no cognition."[1]

Just realise what a concession for one who, during a life of research, had—in opposition to his own steadfast faith—become reluctantly conscious of the utter futility of all previous metaphysical methods; and, at last, after the supposed discovery of synthetical propositions *a priori*, had set out with the fond hope of having found a way to penetrate by dint of this new, veritably constructive agency to his cherished realm of transcendent metaphysics. But alas! in whatever manner he tried, metaphysics refused to let itself be constructed after the mode of pure mathematics. An exhaustive investigation of the efficiency of synthetical propositions *a priori* forced the inflexible truth upon him: that the synthetical forms remain empty, that the synthetising power has nothing to exert itself upon,—*if sensible presentations are not given to them.* No experience, no knowledge without sense-material. Objects conceptually originated have no validity. There is no science of *transcendent* metaphysics; only a science of the *a priori* principles of natural knowledge or *immanent* metaphysics.

Now, is there anything in this final outcome and verdict of the *Critick* that Transcendentalists can accept? Surely, no philosophical school can allow itself to push lightly aside as irrelevant and obstructive the principal conclusion, the very core of the system which, on the whole, it professes to adopt.

It is evidently the compulsory contents of percepts that Kant so emphatically opposes to conceptual understanding, declaring the latter to be void of objective validity, unless it is elaborating such compulsory material. In this sense, in the sense, namely, that concepts, or propositions of whatever kind, have no objective validity unless they have reference to compulsory perception—that is, to perception, which through powers not our own, may be forcibly and normally aroused in us,—we Naturalists fully concur in the result of Kant's Critical investigation. And we feel bound to assert, that an unbridgeable chasm severs us from such thinking as strives to reverse the direction of the objective field upon which we have to exert our understanding, wilfully seeking for it in the dim and distant recesses of the intellectual sphere, instead of humbly accepting it at the sensible surface, where it is so ostensibly placed in nature.

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[1] Vol. i., p. 403, Rosenkr. Ed.

Transcendentalists, who understand both their own system and that of the *Critick*, have—for the reasons just given—to repudiate any affiliation with a persuasion so explicitly denying any knowledge save that of sensible manifestations. Nevertheless, with Kant's own wings, or rather by force of his transcendental magic, they may find a ready and telling way of exultingly soaring over the vexatious encumbrances and realistic scruples of the *Critick*.

Kant, with all his caution, took one fatal flight, which, in spite of his many remonstrances, inevitably involves the complete surrender of his Critical system to unmitigated Transcendentalism, the very Idealism he felt so indignant at being accused of. If, namely,—as taught by Kant under influence of his rationalistic training—all synthesis of mental elements is performed by an action of the *understanding*, then it clearly follows that there can be found nothing whatever in consciousness that is not already put together by this sole agent of synthetical action. If it is indeed the intelligible Ego that through the synthetical categories accomplishes all combinations, then appearances or percepts are just as well formed by it as any other kind of mental manifestation. All mental phenomena, sensorial appearances included, are in time, and therefore with time evanescent in each lapsing instant. If, notwithstanding, they are perceived or conceived as durable, it must necessarily be the synthetising principle that unites into simultaneous apperception the transitory instants of presentation.

Kant, who believed that appearances are given in passive space, imagined that, in the duration of such appearances, he had discovered a positive proof of the existence of foreign things, as furnishing the material of sense. And—pushing this presumed discovery to the utmost—he further concluded that only through such duration of extended appearances is the experience of our inner self in time rendered possible. In his scientific abhorrence of *Schwärmerei* he, for once, allowed himself to chuckle audibly at having thus turned the tables on the Idealists, who pretend to infer foreign existences, only indirectly, by means of inner experience. He reasoned as follows: The consciousness of our own selves is given to us in empirical experiences, but only through the inner sense in time. Now, in time, there is nothing lasting to stay and to consolidate the fleeting moments of this inner experience. Something perceptually enduring is requisite to this purpose; for our sense of identical subjectiveness, which accompanies all experience, does not itself bring experience with it. Therefore, the consciousness of our own selves, as experiencing, presupposes something enduringly given in perception.

The above proof rests, as Kant himself was well aware, on the assumption that appearances in space are really received, and not originated by us; that they are, in fact, forcibly imprinted on the passive receptivity of the outer sense. And it is this compulsory character of percepts that supplies Kant with a distinction between real experience and the spontaneous creations of fancy.

We have, however, to play into the hands of Transcendentalism by conceding that this ingenious thrust at Idealism does not prove very efficacious on close examination. Not thus easily can we ever hope to glide out of the magic bonds of individual consciousness. It may be simply asked: If something enduringly given in space is needed to consolidate and to verify inner experience, how then is, for instance, the experience of a piece of music effected? Nothing at all enduring is given in perception of this kind. Everything is occurring exclusively in time. Nevertheless we are conscious of a consolidated experience, which we believe to be as real as any experience that comes to us through the agency of space. This very plain consideration renders it altogether evident that the principle, force, or subject, which consolidates into experience the momentarily lapsing elements of feeling is, in every instance of inner or outer apperception, the one synthetising power that constitutes our own unitary consciousness; a power placed by Kant and the Transcendentalists in the intelligible Ego, manifest in the synthetical unity of apperception, and functioning through the categories. The persistency of space-manifestations has thus likewise to be attributed to the combining and consolidating power of our own being.

We can now very well see, how, by force of the assumption of a synthetising principle of the intelligible order, Transcendentalism has thus far gained the day over all realistic suppositions on the sensorial side. It may confidently proceed to further conquests.

If it is really the intelligible Ego that combines the manifold of sense in a unitary consciousness, then—as previously stated—nothing ever so elementary can be detected uncombined in consciousness, nothing that is not already forming part of the unitary system of mental recognition. Anything like a passive appearance, in Kant's sense, is a bare impossibility. Not only are such appearances already in themselves through-and-through the work of combination, but they occupy moreover a distinct place in the whole system of experience, and are therefore, in the very moment of realisation, inserted by the active principle into their proper position, and recognised as definitely related to other parts of the totality of experience.

All this collecting and recollecting, cognising and recognising, being performed by the assumed synthetical power, it is clear that very little can be discovered in consciousness that is not its workmanship. Before we have done, we shall see how all-efficient the synthetical principle proves to be. No wonder, for it is nothing less than our whole feeling, thinking, and willing subject; in fact, our very being mentally occupied.

We have, however, not yet explicitly accounted for the distinction between fancy and reality as established by Transcendentalism; and we are not yet quite clear about the manner in which the qualitative contents of consciousness arise.

The qualitative or sensorial element has always been to Transcendentalists the most awkward ingredient of consciousness. Yet they have various ways of plausibly disposing of it. For instance, they may say: a sensation is felt more or less as a special or qualitative element of experience in proportion as its proper place in the whole system of experience is not yet given to it. As soon as it comes to stand in its real position and proper relation to all other elements of experience it loses its sensorial character, and goes to constitute with other ingredients of consciousness an intelligible fact. Sensations, from this point of view, are, therefore, unrecognised fragments of experience, and contain least reality of all that enters consciousness.

It has always been a chief endeavour of conceptual realism to cancel the reality of sensation, making it appear, as much as possible, a mere unassimilated residuum of indistinct conception. Leibniz had so completely succeeded in this, that it happened to Kant to have to rediscover in the oddest way—by means of logic—the lost domain of sensible presentation in time and space. But to him also conceptual processes seemed pre-eminently, nay, exclusively active. And it was principally due to this strangely unnatural philosophical prepossession, that he committed the ominous mistake of looking upon percepts as passively received, intrinsically inert contents of consciousness.

The truth is: conceptual apperception actually appears, in a certain sense, more active than perceptual apperception, because the so-called voluntary activity which constitutes attention and recognition, leads in conceptual apperception to the articulate framing of motor signs of recognition and predication, which definite muscular functions are particularly felt as an active process; whilst similar, but less definite, activities in perceptual attention and recognition are not so distinctly felt as "an action of the subject". However, at present, we are concerned not with the explanation of natural phenomena, but with their spiriting away.

Such Transcendentalists as desire to constitute objective knowledge, not by a more profound and thorough insight into the natural connexions of the perceptual order, or by mysticism within the boundaries of the world of sensorial compulsion, but rather by a complete absorption of the apparent manifold of sense into the realising and objectifying unity of apperception,—such so-called Neo-Kantian Transcendentalists have still another way out of the difficulty of sensible presentation. They may simply point to the probability that our "productive imagination," which without help from outside, quite by means of its own, is capable of constructing a more or less consistent agglomeration of all kinds of conscious phenomena, may well be competent to produce the entire contents of objectively valid experience, when working—not in its own fanciful manner—but under the strict regulations of the categories. This may with more likelihood be considered to be actually the case, as—according to Transcendental Idealism—it is this same "productive imagination" which, in fact, constructs the *a priori* figurations of pure mathematics, and discovers the synthetical truths connected with them, to which all experience has to conform.

When we reflect how much we can accomplish within ourselves, by means of intrinsic spontaneity, without the aid of sensorial compulsion, we may rightly pronounce the source of such spontaneity to be well-nigh all-efficient. The spontaneously acting subject in us is obviously the real power creating our phenomenal world. And thus, under the supposition of such a creating subject or personality of the intelligible order, one finds naturally no difficulty in legitimately reaching the conclusion, that the entire contents of consciousness are throughout, in form and material, its product; for they are certainly the product of the power, which in verity constitutes the feeling and thinking subject.

There remains now nothing essential unexplained, except the difference between fancy and reality, which is not quite effaced by calling fancy that which "productive imagination" builds up without restraint; reality being its product, when the synthesis is performed in conformity with the categories. Experience and knowledge have to be experience and knowledge of something definitely subsisting, in order to be worthy of the claim of being objective, real, necessary, universally valid. Truth cannot consist of subjectively acquired thought merely, but has to be the agreement of such thought with some enduring standard.

This enduring standard can, evidently, not be found in anything given through the senses. We do not experience a world of steadfast things and relations lying outside consciousness. We have to admit that the principle or subject which is the bearer of the permanently and universally valid standard whose recognition constitutes knowledge for us, must be analogous in nature to the principle or subject which in ourselves is labouring to realise the standard truth. How otherwise could we at all possess universally valid experience, recognising such permanent relations as are truth for our thinking? Our individual subject, and that which it recognises, must be of essentially the same nature. As surely, then, as our own thinking subject proves—in conformity with transcendental assumption—to be a spiritual power, just as surely must its knowledge, in order to be true, consist in the recognition of the contents of a universal consciousness, borne by a spiritual subject; a consciousness not incident to time and its changes, but belonging to an all-comprising being, whose thought must be the world of everlasting reality.

This is an inevitable inference from the admission of an intelligible or spiritual principle of synthesis. According to it, the object and aim of our knowledge can consist in nothing but a growing conformity with universal consciousness, individual thought becoming more and more identical with All-Being, the more closely it is reproducing universal thought. The goal of all striving is the entire identification of our being with universal consciousness by the recognition of truth, which consists in the thinking of eternal thoughts.

This is all very clear thus far. But how strange of our present Transcendentalists to wish to graft this ancient and simple doctrine on the elaborate investigation of immanent metaphysics, *i.e.*, of the *a priori* principles of the natural knowledge of the world of sensible presentation, which most certainly and avowedly makes up the Critical system, as taught with so much German thoroughness and Scotch penetration by the philosopher of Königsberg!

However, this discussion shall not any further be embarrassed by drawing in recusant Kant, who can by no means be tortured into a representative of genuine Transcendentalism and its methods, or of the view which shall be here contrasted with it.

A theory of knowledge from the transcendental standpoint remains as yet a desideratum—shall we say of science?—a desideratum, unless, indeed, it be contained in the oracular enunciation that the thinking subject is all-efficient. But, notwithstanding the utter darkness regarding ways and means, our imagination can reach much more readily the final outcome of our transcendental than of our experiential attitude. What ardent student of thought has not shared the divine frenzy of Plato and the poets; has not with Plotinus and the mystics of all ages offered his mind to the heavenly visions of intellectual intuition?[1] Yet, shall we make it the serious concern and duty of our lives to be striving for re-identification or Nirvâna within the ecstatic seclusion of our individual souls,—and not rather with united zeal to maintain and widen the precious and precarious distance placed by the toil of our forefathers between our nobler social emulation and the ferine prowling of savagery?

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[1] The following passage may bear witness that the transcendental mode of thinking is not quite foreign to the present writer. It was penned by him, when still very young, before a close study of the inexorable workings of nature had checked his flights of fancy, and reduced his thoughts to sober dependence. "Ihr bethörten Menschenkinder, verharret nicht länger in lethargischer Besinnungslosigkeit. Raffet euch endlich auf zu vollgültigem Bewusstsein. Mit einem willenskräftigen Erkenntnissact verscheuchet den finstern, unheilvollen Wahn, der jenes ungefüge Hemmniss, die inerte Masse eines materiellen Universums, zwischen die rege Gemeinschaft der Geister gelagert. Es gilt nunmehr der heiligen Wahrheit ins unverhüllte Antlitz zu blicken. Sehnsuchtsmuthig ergreift denn den starren Schleier todter, abstracter Dinge, der euch die segensreiche Gegenwart der lebendigen Wirklichkeit verdeckt, und reisst ihn hinweg. Alsbald wird die unmittelbare Berührung mit der schopferischen Macht euch fühlbar werden. Ihr werdet es wissen dann dass es der ewige Geist selbst ist der in den Bildern der Natur nicht müde wird eurer Seele die rechte Weisung einzuprägen. Land und Meer und Sternenhimmel, Berg und Thal, Wald und Feld werden aufhören wie fremdartige Gebilde einer abgesonderten Aussenwelt euch anzustarren. Ueberall hin wo euer Auge schweift, werden sich die Dinge in feierlich erhabene Symbole wandeln; werden sich zusammenfügen zu einer Gott-beredten Sprache, die in erschöpfendem Gleichniss die ewigen Rathschlüsse des allmächtigen Willens unaufhörlich eurem Schauen offenbart."

Begging pardon for this long German quotation in an English periodical, I wish to convey with it the impression that the present inquiry is undertaken in no unsympathetic spirit, but only because of the more profound truth which I believe to be contained in Naturalism.

II.

We have found, in agreement with Transcendentalism, that the experiencing subject must be the sentient agent, the thinker, and therewith itself the veritable forger of the momentarily lapsing particulars of thought. There is nothing wholly unexperienced and, consequently, wholly unsynthetised and unrecognised in consciousness. To be humanly conscious is to perceive and to conceive, and the things and relations we thus perceive and conceive are through-and-through our own percepts and concepts. Moreover, the transitory conscious phenomena are somehow, in spite of their successive evanescence, retained by the experiencing subject, and go to form our consolidated memory, our logical totality of knowledge, or whatever name we may give to that systematised accumulation of previous experience into which are taken up all casual conscious occurrences.

This grand sweep of power on the part of the experiencing subject means really that it is all-efficient, so far as the creation and disposition of its own conscious phenomena are concerned. But—and here we have again to corroborate the teaching of Transcendentalism—the real significance of all experience, that, namely, which constitutes its truth, must be dependent on its correspondence with a reality not originated by itself.

From this fundamental accord of Transcendentalism and Naturalism, as regards the all-efficiency of the subject in the creation of its world of consciousness, and the dependence for truth of its experience on something not itself,—from this substantial accord all less thoroughgoing philosophies find themselves excluded.

Our conflict—the most momentous of all human conflicts—turns altogether on the *veritable nature* of the experiencing subject, and on the *kind* of reality which experience signifies.

The most striking contrast between the nature of the subject of our mental phenomena as conceived by Transcendentalism, and of its nature as conceived by Naturalism, is to be found in the fact that to Transcendentalists nothing of their subject of mental phenomena can ever appear in this experienced world of ours; whilst to the Naturalistic thinker his bearer of mental phenomena, the living organism, is constantly making its appearance among the other configurations of nature. Everything hypostatised by Transcendentalism—and this amounts to all the powers of our being—remains for ever hidden from our view, never becomes manifest in phenomenal existence as an abiding appearance or perceptual presence; whilst, on the contrary, Naturalistic thinkers have not to postulate anything that is not capable of appearing with utmost distinctness in phenomenal existence. To the Transcendentalist, there emerges into manifest existence nothing but the conscious phenomena which he believes to be all-through the work or thought of a spiritual principle. To him there can be no other being than this intelligible Ego and its thoughts; for there can be nothing intermediate between the spiritual subject and its own creations.

Consequently, we are at once confronted with the question: What then, in a universe where thought and being are identical, can that persistent system of mental phenomena signify, which, all through life, so faithfully accompanies us as our own body?

It is incumbent on thinkers who have the truth at heart and are not merely advocating foregone conclusions, not to allow themselves self-delusively to glide over this paramount contrast demonstrated by nature itself as actually obtaining between the Transcendental and the Natural mode of accounting for the subject of conscious occurrences.

Both views presuppose a bearer or subject of the phenomena of consciousness, which alone are immediately given. We all naturally and practically take our sensible individuality to be this subject. The theoretically desiderated entity manifests itself to us as a bodily organisation with all the compulsory vividness and particularity of perception. Transcendentalists, nevertheless, reject this actually appearing individuality, and invent, in its stead, a subject of their own, whose existence is proved by nothing but specious words; whose powers, all assumed without evidence, and incapable of being put to the test of experience, can be multiplied, exalted and directed as fancy or any other consideration may dictate. Who can prescribe limits to a thinking principle whose thoughts are reality itself—reality wholly constituted by thought?

And, as thoughts in their most developed form are humanly established vehicles for the representation of extensive and frequently experienced complexes of feelings, the true signification of these consolidated complexes of feelings is, by the Identity-philosophy, with strange natural perversity and human superciliousness, believed to be of the nature of the vehicle or sign, and not of the phenomena signified. Likewise the experiencing subject is considered to be kindred to the sign-making department in us, and not to the sphere of signified phenomenal revelations. The sign-making activity, and not the all-including, organically concentrating and epitomising subject, is thought to be the actual power gathering up, preserving, binding together and, therefore, giving meaning and reality to the phenomenal conglomerates.

Fully to realise the visionary airiness and helpless inanity of this volatilising procedure, we must firmly bear in mind that the mental phenomena themselves are considered by Transcendentalists to be in their consistency and arrangement wholly the product of the thinking Ego; that, therefore, there can be nothing binding in their sensorial presentation, by which the work of gradual conceptual transformation and assimilation performed by the spiritual agent may in any way be experientially gauged, and from which some clue to the exact nature and to the limits of its powers can be derived. Indeed, under Transcendental assumptions, nothing foreign, no resistance or compulsion of any kind, and, consequently, no limitation on the sensorial side is at all permitted to hamper the creative activity of the spiritual subject. If there is restraint anywhere, it must necessarily be in its own utterly inaccessible disposition; for, on the conceptual side, the limit of possible objective productiveness is reached only when individual consciousness has become identical with universal consciousness.

What boundless range for fanciful conjecture! What hopeless prospect for scientific progress! Shall we have a revival of the reign of logical emanation—self-evolving concepts creating our world of realities? Or will our present Transcendentalists, as they promise, seriously attempt to harmonise the unencumbered performances of their productive Ego with the stringently binding disclosures of natural science? It will be curious, indeed, to watch how they will set about projecting into actuality the conceptual obstructions between individual and universal consciousness, so that these shall constitute a natural science of perceptual phenomena, such quasi-science being to them necessarily merely the record of inadequately conceived relations—relations that are real only in eternal consciousness.

Meanwhile, we may be allowed to declare our bodily organisation veritably given in existence, as a fact of some sort, not to be argued away. To Transcendentalists our body represents a wholly incongruous superfluity, much less assimilable even than conscious states have proved to Biological Automatism.

Formerly, the sensorial affections at least, and especially the so-called sensualities were held to be of bodily origin. And this gave rise to a lively warfare, carried on through many a century, between spiritual and corporeal strivings,—though with sufficient practical compromise even in such as Simeon Stylites. Now-a-days, we all know with perfect certainty that sensations or appetites, be they ever so sensual, nevertheless form integrant parts of our unitary consciousness, and therefore belong to the ideal and not to the bodily sphere. If any of the contents of consciousness are allowed to originate in the body, it is clear that no legitimate reason can be found why all the rest should not originate in exactly the same manner. Accordingly, it is not our sensuality, but the insensible, impercipient body itself, which after all cabalistic transmutations of phenomenal occurrences into spiritual facts, is still intractably left as a *caput mortuum* in the hands of Transcendentalists.

How, in seriousness, are we transcendentally to dispose of this residuary appendix of our otherwise so ideally consistent being? Of what import to knowledge is this natural shadow of ours, so steadily abiding with us in light and darkness to the end of our days, an unwavering appearance, marvellously organised beyond the limits of all visibility, intensely astir with living commotion, and eloquently expressive of what thoughts we have?

We are sure that it cannot be an appearance of our spiritual organisation: for, first of all, the spiritual subject can never appear; and, moreover, how could bone, flesh and brain in any way symbolically represent such a spiritual organisation in the phenomenal world? Yet something this inalienable bulk, at all times so obstructively darkening the luminous conception of spiritual being, must undoubtedly signify to us individually, as well as to experience in general. We have a right to expect from Transcendentalists an explanation of the relation of body to spirit in some degree equivalent to the explanation which we give of the relation of conscious phenomena to our bodily organisation.

In their perplexity at the irreducible presence of the *corpus delicti* of our earthly being, Transcendentalists sometimes suggest that in our present existence the body is organic to the spiritual subject,—which, if it means anything, must be intended as a hint that somehow our body constitutes an instrument of inter-communication between our own and other spirits; or, more consistently, a place or station of transition between the indistinct and confused apprehension of a certain manifold of sense and its objective recognition as universally valid truth.

But, as we have already seen, a Transcendentalist cannot consistently admit anything intermediate between thinking and being. For him there is only a more or less adequate recognition of the eternal facts of universal consciousness. Even our voluntary activity he can regard only as a spiritual action, which, without the aid of intervening instrumentalities, immediately influences our knowledge. Any kind of effective exertion on our part can result only in a truer recognition of that which eternally abides in universal consciousness. Not by any means can we effect an actual modification of the immutable facts which are held to constitute the only standard of our knowledge.

From the Transcendental standpoint our body can be, therefore, neither an instrument of intercommunication nor a place of transition between sensible apprehension and conceptual recognition. Indeed, our body, together with all other sensible phenomena, can signify to genuine Transcendentalism nothing but the inadequate conception of eternal and unalterable facts within universal consciousness.

Now, can there be found a scientific Transcendentalist bold enough actually to maintain that our growing, ever-changing, and at last utterly perishing body is, nevertheless, when truthfully conceived, nothing but an eternal and immutable fact in universal consciousness? And, if such an indomitable thinker can really be found, it will then be still incumbent on him to show how our spiritual subject can at all be related to the eternal fact in universal consciousness which constitutes our body—our body now strangely elevated to the rank of an eternal thought of the all-comprising consciousness; whilst our own thought, which but even now was confidently settled upon as the one stable element of our personality, turns out to be a power only vicariously, changeably and confusedly conceiving the much more steadfast reality actually represented by our bodily appearance.

Thus hopelessly contradictory is the endeavour to establish objective reality by means of the conceptual recognition of eternal thought.

Reasoning from transcendental premisses, the obvious truth is, that our body must ever remain an utterly refractory group of perceptual phenomena; not only perfectly useless, but thoroughly obstructive; indeed, a constantly obtruding nuisance, wantonly and bewilderingly interpolated between thinking and being.

This monstrous negation, implied in the conceptual origination of reality, must, in all verity, form the final verdict of Transcendentalism as regards the import of that intimately familiar, pre-eminently efficient and marvellously endowed vehicle of life, which ushers our embryonic mind into being, and with which all our developing faculties keep equal pace from the beginning to the end of our planetary existence.

Transcendentalists themselves instinctively shrink from these necessary consequences of their position. They are anxious to compromise in some way with natural science. But this is a matter of most momentous import; a matter in which the highest interests of humanity are immediately concerned. Spiritual Recognition—or Natural Development? Either the human body in its progressive organisation has to be cherished as the only true temple and revealing oracle in the universe; or complete extrication from every bodily impediment, through adequate recognition, must become the chief aim of human exertion. Where can there be found in human history a conflict that does not dwindle into insignificance in comparison with this one now pending? In such a vital cause, conscious or unconscious prevarication must prove intensely prejudicial to all concerned. Thorough candour is most desirable; for we all wish unambiguously to learn what our existence really implies. Let Transcendentalists then fearlessly think out their own system, and not believe themselves rooted in real knowledge, because some glimpses of truth have enabled them to carry on an effective warfare against other prevalent interpretations of nature.

The late Professor Green, by his valiant fight against Nominalistic Idealism, has gained knightly honours among philosophers. He has clearly shown that no feeling and thinking subject can possibly originate from the coalescence of mental phenomena; that the power which combines such phenomena must pre-exist in every phenomenal experience; that, in fact, the mental states are not themselves our veritable being. But, as regards the necessary conclusions of his own system, this resolute assailant betrays a strangely unsteady grasp. He, like other Transcendentalists, labours to prove that the thinking principle in us originates objective reality, by the recognition of facts eternally abiding in a universal consciousness. He does not admit sensorial compulsion, or the Kantian distinction between "form" and "matter" of thought. To him our consciousness is a synthetised product, entirely the work of the thinking entity. Thus bravely does he follow the lead of his first principles, whilst considering the composition of consciousness in general. But, when he attempts to account for our gradually becoming what we are, his transcendental courage fails him. He evidently does not see his way—as he ought in conformity with his general view—to maintain that cumulative processes in nature, and especially the growth in time of the faculties of our race, represent merely a progressive recognition on our side of facts unalterably abiding in universal consciousness. Instead of this, he declares with amazing scientific *naïveté* that "our consciousness may mean either of two things; either a function of the animal organism, which is being made, gradually and with interruptions, a vehicle of the eternal consciousness; or that eternal consciousness itself, as making the animal organism its vehicle." "The consciousness which varies from moment to moment, which is in succession, and of which each successive state depends on a series of 'external and internal' events, is consciousness in the former sense. It consists in what may properly be called phenomena in successive modifications of the animal organism." (MIND XXVII., p. 323.) It is Professor Green who tells us, that our phenomenal consciousness "consists in successive modifications of the animal organism"! Who is willing to go this length with him?

If it were once decisively understood, or only generally accepted and firmly believed, that "in the process of our learning to know the world, effects of sentient experience are accumulated in the organism, yielding new modes of reaction upon stimulus, and fresh associations of feeling with feeling" (p. 324); if that much had become quite certain to knowledge, it would not puzzle us long to determine the true meaning of such organically accumulated experience.

Of course, Transcendentalists in general cannot be held responsible for such self-immolating concessions. But these reveal the excessive scientific weakness of the scheme, and they also disclose the very quintessence of the supernatural postulation it involves; namely, the neutralisation of time and its changing consequences through spiritual agency. The last thing we should have expected to find conceded by a Transcendentalist is, that feelings of any kind can be functions of the organism, whatever that organism in itself may be taken to be. If this is so readily granted and comprehended by supernaturalists, there remains indeed no valid reason why naturalistic thinkers should any further exert themselves. The understanding of mental phenomena as functions of the organism has been their chief aim, ever since the nervous system was found to be the seat or instrument of consciousness. But with what scientific result hitherto? It has been confessed by one after another of those who have most earnestly devoted themselves to the solution of this central problem, that our understanding is unable to conceive in the remotest degree how any function of the organism can be capable of originating conscious states.

The solution offered by Psychophysical Monism, that functional brain-motion and feeling are two aspects of one and the same fact in nature, this solution, when closely examined, turns out to be an altogether dualistic and unthinkable assertion. The activity of the subject's brain, and an observer's perception of it, must necessarily be two totally different facts of nature.

It has been shown at length in MIND XXVI.-VIII., that the organism as we know it, together with all its functions, are only percepts of an observer; and that, therefore, the conscious states in the observed subject cannot possibly be functions of this organism, *i.e.*, the observer's percept; but that the activity which in the observed subject gives rise to conscious states, has also power to compel in an observer, by means of specific stimulation, the percept of the subject's brain definitely functioning. Moreover, the foreign power, which compels in an observer the perception of a brain, may be functionally at rest. We can perceive a living brain not now in functional commotion, and are justified in concluding therefrom that the unknown power which compels our perception of a brain, is the entity which at times displays functions—functions that to itself are conscious states, but to us observers only specific stimuli, arousing perceptions of our own, that consist in certain molecular motions.

In the subject, that which feels is really never at rest. Its mere vitality involves a never-flagging activity; an activity below the level of special feeling, but accompanied —principally in the waking-state—by a more or less intensive sense of being. The definite determination or heightening of this general sense of being by specific inward or outward stimulation constitutes function or special feeling. It is, however, always the unitary subject which experiences the special feeling.

Why then should not the functional stir of the organised vehicle of naturally accumulated experience suffice to furnish our consciousness with all its contents? Here we arrive at the one great fact from which Transcendentalism really originates, and which gives it its polemical efficiency over Mental or Material Atomism. All our conscious states—which means all phenomena whatever—are in time, and with time evanescent. Consequently, the principle or power that unites into simultaneous mental presence the perishing elements, recognising them as integrant parts of an abiding system of knowledge, cannot itself be subject to time, cannot be phenomenally evanescent, but must constitute an identically enduring and self-consistent entity.

Readers of MIND, who may perhaps have given some attention to the Philosophy of Organisation as partly propounded in former articles, will not feel surprised to learn that the present writer fully concurs in this cardinal conclusion of Transcendentalism. He also, taught by biological research, is quite convinced that the feeling and thinking subject is an identically enduring, indiscerptible unity.

But what does Transcendentalism actually teach us concerning the true nature of such an experiencing subject, that is not itself in time? Like us, it concludes from the contrast between our persistent system of knowledge and the evident evanescence of all conscious phenomena, that there must be an identically enduring, self-consistent subject, which thinks and feels. But where does it demonstrate to us the existence of such a subject? In what regions, accessible to human consciousness, does it endeavour to point out the real subsistence of such an entity? It merely declares that, according to its reasoning, our veritable being must have somehow a timeless existence, and that, therefore, it must subsist somewhere beyond the reach of all natural experience as a something of which we may confidently say that it is—subjectively speaking—an all-efficient power, neutralising through simultaneous and unitary realisation the lapsing instants of time and the fragmentary nature of their contents.

Now we candidly ask: Is there anything gained—are there any bearings found for the guidance of our striving by calling the persistent and unitary power, utterly unknown to Transcendentalism, spiritual or anything else? by projecting a bare mystery, by dint of mere words, into the blank nothingness of unfelt existence, where no human thought can pierce?

It would seem that, if the best part of us were really imperishably subsistent in a supernatural state, exerting therefrom all the power we may actually possess, then the sooner the remaining portion of us all could manage to get withdrawn into that superior existence, the better for every one of us. I will, however, refrain from discussing the pernicious consequences of such a doctrine. Appealing to the impartial judgment of open-minded thinkers, I will rely on purely scientific arguments.

The task is to comprehend the true nature of that identically abiding subject which experiences the phenomenal changes. Now can a Transcendentalist, or any one else, conceive a being or subject constantly experiencing changes without ever changing itself? Can the most inspired intellectual intuition represent to itself an entity whose life consists in experiencing changes, and which nevertheless remains itself unalterably the same? Yet, this is exactly what Transcendentalism asserts of its experiencing subject. True it is, that the conscious phenomena can be experienced only by an identically enduring subject. This is the mystery to which the entire philosophy of knowledge naturally points. But, it is obvious that Transcendentalism possesses as little the key to it as any other speculative system.

Well, then, let us enter the laboratory of Nature and humbly give up our mind to her teachings. There one may witness with one's own senses how this psychologically incomprehensible operation of change-experiencing identity is actually accomplished. Will a candid philosopher deny, if it be clearly shown how the natural subject which experiences the conscious phenomena endures nevertheless in identical self-consistency, that then the argument on which Transcendentalism principally bases its right of existence, must be considered overcome?

Of course, Transcendentalism as the mere belief of ever so many millions of us, or as the mystic faith of many an exuberant soul, will in no wise be immediately affected by such an elucidation. The ghostly or spiritual effectuation of natural occurrences has ever been and is still the mode of interpretation most readily seized upon by primitive thinking; and the ephemeral consistency of all thought-material opens a royal road to the loftiest imaginings of idealistic mysticism. But by the actual demonstration of the identical perdurability of our natural subject and its knowledge, amidst all the phenomenal changes and experiences to which it is incident—by such a natural understanding of the indispensable postulate of every theory of knowledge, Transcendentalism would in fact find itself for ever vanquished in the sphere of scientific philosophy.

The entity which has power to arouse in us the perception of a living human organism, we recognise to be the veritable subject, having the conscious phenomena. If so, this subject, whilst experiencing its ever-varying play of conscious states, must nevertheless be capable of upholding intact its own identity. The activity which we perceive as functional changes of the nervous system of our natural subject, gives rise to its conscious states. The subject itself suffers thereby as much change as is involved in its functional activity. But now mark the truly transcendental alchemy of Nature. Immediately upon such functional change, by dint of its own indwelling and scientifically intelligible powers, the experiencing subject restores itself to full integrity. Promptly it is ready again as an identical being—replenished in its all-endowed wholeness—to re-encounter any fresh experiential incident that may accrue to it. And, at last, when it comes to be worn by the irruption of more phenomenal change than it can restoratively overcome, then it relinquishes for a while functional brain-activity, reconstituting itself out-and-out by means of the prolonged process of organic renovation which we call sleep.

This, indeed, is the veritable, the naturally manifest time-conquering, change-compensating power in us; a power kept efficient only by the incessant toil of ever identically reintegrating vitality, and not by the figment of changeless subsistence in some secure recess of spiritual transcendence.

Is, then, the free play of unverifiably inventive fancy more venerable than the plodding assiduity of trustfully labouring actuality? When will the human mind grow so true and devotional as to feel greater awe at the actual maintenance of the substance and white-heat of fervently glowing and impetuously sparkling life, than at its own dreamy thoughts and languid visions of efficient agency? In every one of us, experience organically gathered-up since the first dawn of life is now at this moment, as a systematised and identically abiding whole, standing ready to test the inrush of casual occurrences. An endless train of beings, with endless trains of conscious phenomena, have for ever vanished; yet the life-won results of these existences have all been preserved in actual presence, and are now offered as a totality of enduringly organised and generically recognising experience to whatever may individually happen to us. The irretrievable Past, moment for moment, sunk away into the lost waste of inexistence, is—counter to all thought-expectation—found, nevertheless, miraculously rescued through the potency of Organisation. Even now it is effectually present with us, a transindividual power, perpetuating the achievements of our race, and responsibly linking our own little being to all that has gone before and to all that will ever humanly come hereafter. The sacred presence of all-involving, hope-bearing life is, indeed, a mystery; a deep inscrutable mystery, enfolding us wholly. But why invest with its secret bare emptiness beyond, when it is vitality itself that is so replete with transcendent meaning?

By recognising the process through which organic identity and unity are maintained under constant and manifold change, the ancient puzzle of the One and the Many, or of the enduring substance and its varying affections, has at last found its scientific solution. With it Experientialism has received a foundation which no speculation can henceforth subvert. The most vulnerable point of the Experience-philosophy has always been its inability to account through the manifold of sense, or through cumulative experiences or processes of any kind, for the systematised and enduring identity and unity of knowledge. Lately the transmissibility of acquired mental faculties has come to be an acknowledged fact, which practically solves the question. But it was not scientifically understood how the particular and transitory incidents of experience can become integrant parts of a unitary consciousness. This hitherto altogether unintelligible synthesis left room for a Transcendentalist triumph, by which Experientialism in the midst of its most prosperous era was suddenly and effectually checked, so far as philosophical reasoning is concerned. The insistence upon this one ultimate inexplicability left no solid basis for the natural science of mind or body. For it is absolutely impossible to explain a living or, indeed, a self-efficient totality of any kind by means of the aggregation of elementary constituents or forces. To students of nature it had, however, long ago become quite clear that only the understanding of Organisation could possibly furnish the clue to the mystery here involved. Consequently, it is reasoning grounded on organic facts, as explained in former numbers of this Journal, which is here measured against Transcendental postulation.

With the elucidation of the Identity-problem the most important part of the task is accomplished. Memory, synthesis, simultaneous presentation, and all other faculties and operations involved in experience are surely likewise more intelligibly accounted for by organic processes than merely by spiritual assumptions.

It is nothing new to look upon memory as organic and not as spiritual retention. I say *spiritual* and not *mental* retention, because mind, as such, consists avowedly altogether of transitory mental states, of a mere phenomenal play in time, and can consequently retain nothing in itself. Now try to imagine a spiritual principle gathering up from time mental phenomena, and timelessly preserving the same in unconscious spiritual latency, till again called forth—not by a spiritual operation but very obviously—by the compulsory force of their natural connexions with other mental phenomena, upon which occasion they are forthwith reconverted into perishing natural occurrences. These are the necessary natural consequences of the assumption of spiritual memory. To escape such a concatenation of absurdities, there remains to Transcendentalism but one outlet. It has unambiguously to declare nature abolished altogether, which, indeed, it is implicitly already doing. There is thus left on the scene nothing but spirit, which in its all-embracing completeness must be the world-totality in unconscious repose. Any stir or throb in the *equipoise* of the perfect unity of the One-and-All would produce consciousness, yielding like lightning partial illuminations, which illuminations are our mental states—all the rest vapid illusion. I hardly think that we are in imminent danger of any such nihilistic interpretation of individual consciousness.

Remembered phenomena, arising at once as complete figurations in definite sequence, are evidently already duly synthetised. If, therefore, memory may be considered in any degree organic, it is clear that the synthetising power, active in the reviving process, must also be of organic consistency, and cannot possibly be a force exerted by a spiritual agent on uncombined memory-elements in the very instant of their re-emergence into consciousness.

As regards simultaneous representation, I have explained in former articles how all organic elaboration and function conspire to establish the microcosmic focus of momentary mental realisation, which I have called the "mental presence".

It needs, really, only a correct understanding of Organisation to make it impossible for any thinker to dispense with its teachings in the interpretation of the facts of consciousness. Unfortunately, our literary education renders us too apt to lean in our reasonings on words, whose meaning we only very generally and vaguely realise, and also to give ourselves up to emotions nurtured in the same artificial and pliable medium, and not in actual contact with the stern realities of life. Who of us has not at one time or another had his full swing in those boundless realms of frictionless flight? But how many a fine mind has been for ever unprofitably dissipated in the serenely rarified atmosphere of such uncontrolled thought! How many a nation has been mortally convulsed, or has utterly perished through deadly struggle of its thought-phantoms with the inexorable realities of nature! Let young thinkers of our time seek to gain—as concerning us most nearly at present—an insight into what Transcendentalism has practically done for Germany from 1815 to 1848, and may they benefit by so eloquent a lesson! When a student in Germany, a quarter of a century ago, the present writer also had his fill of conceptual enthusiasm, kindled by lively intercourse with some of the foremost pupils of Fichte, Schelling and Hegel. It seemed all so sweepingly intelligible and piercingly clear in those young days—the universe at large and our lives therein. Not so now, those amazing realities of ours with their engendering throes. Not winged ideas, transporting the soul back to archetypal being ; or " clouds of glory " trailing from a pristine home : but the triumphant swell of conquering actuality, efficiently, relentlessly, uplifted from death and decay ; a sphere of rigorous and veritable fulfilment, where the right and joy of every realising thought has to be earned by submissive zeal.

III.

What then is the import of knowledge? What truth does it recognise and what use does it subserve?

Understanding, intelligence, reason, in short, the recognising principle in us,—has it to seek for its object of knowledge in the direction of generalising and unifying conception, or does it find it, on the contrary, quite on the other side, in the direction of multifariously given perception? Does it, by dint of transcendentally derived powers, reconstruct in individual consciousness an eternal world of universal validity, whose recognition is truth ; or does it rather, by dint of naturally established correspondences, place our unitary being in systematised and truly valid relations with the changeful domain of external influences? Our thinking—does it become true through its adequate realisation of an intelligible world eternally subsisting, or simply through its precise concordance with the mutable world of sensorial compulsion? Is correct thought in itself veritable reality by force of its identity with universal thought ; or is it merely premonitory of such reality through its accurate foreshadowing of actually realisable interactions between ourselves and other things? Is thought, in fine, identical with being ; or is it only the epitomised and unified expression of our own relations to a sphere of foreign existence, that affects our senses?

It cannot be denied that, in thought, we seem to be steadfastly realising a unitary world of universal validity, incommensurably elevated above the transitory play of sensible occurrences. The fleeting manifold of sense appears to be recognised, or to become real to our thinking, only when it has fallen into its due place within the pre-established system of thought-relations which constitutes the abiding universe of conceptual realisation. Thus autonomous thought presents itself to our contemplation as a sphere of complete world-inclusion.

The fundamental impediment, however, to the acceptance of such conceptual comprehension as paramount reality, lies in our natural and irrepressible belief that it is through the senses and not through thought that the real world becomes present to us. We are quite certain that the transitory play of sensible occurrence means, in all earnest, our realisation of the veritable world of efficient actuality. We are unmistakably aware that our perceptions signify definite figurations of foreign influences.

But the great philosophical difficulty in the way of such a naturalistic view of reality obtrudes itself in the indisputable fact that the entire object of sense, as realised by us, is throughout the product of powers inherent in ourselves. The object, whether principally perceived or principally conceived, is altogether made up by the perceiving and conceiving faculties of our own being.

Now the real question is: Whether thought-realisation is in itself—in spite of sense-presentation—the objective world, the real object to be known, the butt and termination of our cognitive exertion; or whether it merely symbolises a system of reality or object of knowledge signalised through the senses, and constituting our veritable field of desirable activity.

If our percepts and concepts have indeed relation to a sphere of externality beyond the senses, which renders them true or objectively valid, then it is certain that this can be only accomplished by a pre-established correspondence, through which our sensorial affections, specifically aroused by those external influences, become signs of their existence and characteristics. There can be no doubt, that the thought of an individual mind, not identical with objective being, can signify existences and occurrences extraneous to its own self only by means of naturally or supernaturally pre-established concordances. The numerous philosophical efforts, aiming in some way or other to assimilate the realising mental phenomena with the nature of the foreign or objective powers thereby realised, must for ever remain futile; for mental phenomena are specific intra-organic functions only awakened by foreign influences. And it is clear that such intrinsically awakened manifestations, consisting wholly in the play of specifically organised energies, cannot possibly bear any resemblance to the awakening influences. Any kind of Realism, thinking to grasp within the sphere of mental manifestation the veritable nature of either an intelligible, *i.e.*, super-mental, or a sensible, *i.e.*, extra-mental, object, is necessarily mistaken. The sense-compelling powers as noumena or things-in-themselves are not directly revealed in the sensorial awakenings which they stimulate. These awakenings are altogether incommensurable effects within the specific organisation of an autonomous subject. All conceptual realisations are thus likewise due to powers within the organic individual systematising and unifying the whole range of its own perceptual awakenings. They are certainly not due to recognition of conceptual types pre-existing in an intelligible world, or of generalities inherent in the particular objects perceptually symbolised.

Whatever relations between the experiencing individual and the source whence the stimulating influences emanate may be truly recognised, must evidently have already been potentially subsistent through pre-established correspondences between its own organised functional capacities and the system of powers capable of specifically stimulating the same. From this natural point of view our consciousness would consist in mental states which can be aroused in us, through the instrumentality of our organism, by a world of corresponding external powers. They would therefore signify, in reference to ourselves, the bearings of such powers on our own being; in reference to the external powers, as such, however, they would simply serve us as signs of their special nature and of their sundry mutual operations on each other. The actual correspondence would obtain between our own organisation as thing-in-itself and the other things-in-themselves, forming together an inter-dependent universe of such things-in-themselves or rather of power-complexes. Our mind would realise—primarily through specific sensory stimulation from outside and then also through intrinsic stimulation—relations pre-established between our own organism and the other things. This mental realisation would take place, because the specifically stimulated sensory functions are at the same time also the subject's sensorial affections, which, by means of organically pre-established interdependence within the nervous system, become, on spreading stimulation, significant of a more or less extensive range of relational correspondences between our own being and the world of which it forms part.

Imagine our organism to be an instrument most delicately attuned at its receiving surface to what appear to us as external vibrations. The foreign powers, more or less at random, in a more or less fragmentary manner, more or less indirectly through adjoining media, play upon it the rhythm of their own activity. By means of the specific energies of living nerve-tissue the imparted rhythms are to the organic subject sensorial affections. Now the entire nervous system, in its present molecular composition and structural collocation, represents the result of such rhythmic attunement between the world of foreign powers and the intrinsic powers of the organism itself; a result attained by endlessly reiterated interaction between those foreign powers and the affected organism, during which process the gradually accomplished organic adjustments are cumulatively transmitted from one generation to another. In what we call the nervous system and its functions, we thus find efficiently reconstituted by organic reproduction the complete range and practical order of possible effects from sensory stimulation by foreign powers, so that anything normal or abnormal that may now strike upon it the stimulating rhythm will elicit the corresponding sensorial response. But we are not merely passive receivers of stimulating rhythms. We spontaneously set ourselves in readiness and motion to solicit or to reject contact with their source of emanation; for this contact means to us either satisfaction or danger through harmonious blending or destructive clash. That which renders contact with foreign powers salutary or deleterious to us, lies in the nature of the foreign powers as things-in-themselves in their relation to our organism as thing-in-itself; and not in the sensorial affections which they arouse in our consciousness through stimulation. It is connatural suitableness or unsuitableness to what we ourselves are or, as representatives of our race, tend to become, which commands our attraction or repulsion, our sympathy or aversion.

We ask whether, as the only possible way of escape from the Identity-philosophy, or simply taken on its own merits, such a naturally pre-established correspondence between our own and other existences, sufficiently explaining the objective validity of our percepts and concepts, is really so unintelligible as Transcendentalism seems to think? —so unintelligible, for instance, as individual recognition of eternal facts in universal consciousness? Of course, those supernaturally pre-established harmonies of the rationalistic school, by which it attempted to account for the parallelism of the inner and the outer world, are altogether inconceivable and, indeed, quite useless. If thought, by means of supernatural powers of its own, is capable of originating all the contents of our consciousness, what need is there for hypostatising a nature outside consciousness to harmonise with them—a nature of which we never can become at all aware, *i.e.*, conscious? It was the inexplicability of the intercommunication between the thinking and the extended world, between the world seemingly in consciousness and the world seemingly out of consciousness, that led to the assumption of such a supernaturally pre-established harmony. But we understand now quite well that our percepts and concepts are alike integrant parts of our own consciousness, and thus the ancient difficulty, how matter can possibly influence mind, has ceased to exist for us, if by matter be meant, as formerly implied, certain sensorially compelled affections hypostatised.

If we are in any way affected by externalities, it is certainly no material stuff of theirs that makes impressions on our mind. The entity which we perceive as our own body, is affected by other entities which we perceive as bodies external to it. Through the process, which we call stimulation, functions within our own organism, yielding sensorial affections to us, are set going. These sensorial affections serve us as signs whereby we recognise the existence and, in a certain sense, also the constitution of those other entities perceived by us, together with their bearings on our own being. This is no more than direct observation teaches. If, however, we are so speculatively or transcendentally possessed as to feel daring enough to deny sensorial compulsion or sensory stimulation altogether, then we find ourselves mercilessly driven to the untenable position exposed in the last section, where we had to declare our own body an altogether useless and obstructive nuisance, and at the same time an eternal fact in universal consciousness.

That there exists between our own being and the world of externalities a wide range of connaturally established relations, is a belief and an interpretation so manifoldly corroborated that it cannot but appear evident to every unprejudiced mind. When I understand the gestures and speech of another human being, is not this sufficient proof of my standing in connaturally established relation to him? Is not blood-affinity, involving similarity of origination and organisation, the efficient agency through which his being is rendered connatural with mine? And is it not this connaturalness which enables me to understand his expressions and thoughts? Can Transcendentalism be believed when it is forced to maintain that all this objective recognition and consentaneity is accomplished by my individual understanding apperceiving in universal consciousness eternal facts, which render it true that there actually subsists in that intelligible region another human being? And when by means of expressions perceived as emanating from such another being I realise the thoughts of this other being, which we both believe to be indicative of certain natural occurrences, can Transcendentalism persuade us that, in this case, my own thinking is also the only veritably existing reality, and that all the rest—the bodily expressions and the thoughts inferred therefrom in another being, together with the natural occurrences believed by both of us to be indicated—that all these seemingly interacting agencies are in reality non-existent, except as my own thought realising certain facts in universal consciousness?

Birth and death, consanguinity and natural development, the whole stirring scene of our natural griefs and joys have no place in a philosophy in which understanding originates nature, and in which, therefore, thought and being are identical. In such a spiritually constituted world the acorn does not in truth reproduce the oak by natural growth, nor does the supreme marvel of natural achievement in reality occur—microscopical germs do not faithfully re-evolve the bodily and mental faculties of parent-organisms. Our world is not the triumph of life over death by constant organic resuscitation; but, on the contrary, a mere confused reflex of unrecognised eternal facts, only a sombre, death-like fiction awaiting intellectual vivification.

The worst feature, perhaps, of such a belief in a hyper-organic, thought-originated world, would be its necessary injunction of intellectual quietism as final aim of all our exertion. Transcendentalism has to insist on the immutable and sempiternal permanency of the completed system of all world-relations, as constituting an eternal fact or undeviating standard of truth in universal consciousness. If our known world consists really in the intellectual synthesis found accomplished in conceptual consciousness—a synthesis whose system of relations we are endeavouring to comprehend as held together, beyond the reach of time, by a single activity of the synthetical unity of apperception; if such is the process by which our world is made, then it is clear that, in order to raise such a synthetically constituted universe from the rank of mere subjective fiction and fitful apprehension to that of steadfast, universally valid objectivity and unity, there must be hypostatised an eternal intelligence actually originating and energising through synthetical thought the complete and undeviating system of world-relations which our own wavering thought only inadequately recognises. The climax of possible existence for us would then be thorough identification with universal consciousness by means of adequate thought. But meanwhile, in conformity with such a view, it should become our aim to realise in the sustained effort of a single synthetical act or concept as much of universal consciousness as possible; a feat actually and seriously attempted by those Hindu Transcendentalists, who passed their lives in the intellectual intuition of the single and all-containing word Om.

In comparison with such a consummation, Hegelian evolutionism would probably seem to most of us a lively occupation. But by giving prominence to the logical evolution of reality at the expense of its synthetical unification, Hegel destroyed the immutable permanence of universal consciousness and thus deprived individual thought of its transcendental standard of truth. Those who have had sufficient curiosity to make themselves acquainted with some of the conceptual world-constructions evolved by the oracular genius of sundry young Hegelians, will agree that the pattern of the "adamantine woof of concepts" is at least as variable as the figurations projected from a magic-lantern. Logical world-evolution is a very grateful exercise to adventurous novices, allowing a grandiloquent and consequential sweep to their fertile imagination. To the learned and intellectually mobile master, dialectic evolution may have offered itself as a welcome device to evade the final attitude of quietistic fixation assumed by his more consistent Hindu forerunners. For, viewed in the light of Hegel's own system, this evolutional process means also only inadequate, discursive recognition on our part of the Absolute, in which all possible logical relations abide as a completed totality of being.

World-emanation can be philosophically conceived as coinciding with world-immanence only through the intervention of an unintelligible miracle. A perfect, all-comprising logical totality can be rightly thought of only as changeless and immutable. The influence which breaks the repose and deranges the perfection of All-Being has necessarily to be considered hostile and undesirable. There is no legitimate way of thinking by which particularisation within an Absolute can be made to appear as its own harmonious manifestation. Here determination is inevitably negation.

The alchemy of Organisation alone renders possible and efficacious the coincidence in one and the same subject of an identically preserved totality with a successive determination of manifold affections. Here we find structurally and functionally realised, through organic processes explained in former articles, the compatibility of logical steadfastness and all-inclusion with sensible change and objective specification. The co-existence of identical duration with temporal mutations, so unintelligible to philosophical thought, is demonstrably effected through organic processes.

The chief aim of Conceptual Transcendentalism has ever been the cancelling of time and its phenomenal diffractions. It strives to comprehend in one simultaneous activity the entire contents of universal consciousness. In our own unity of apperception, in which we combine through thought into one single mental presence many transitory moments of perception, is seen the beginning of a process which, carried to the utmost, must culminate in identification with universal consciousness, through an adequate and simultaneous realisation of all eternal world-relations.

But what kind of eternity is it that Transcendentalism is thus hypostatising? Is it simply infinite duration? Or is it complete riddance of the phenomenal illusion of time? It is not difficult to see that only the former is consistently implied in Conceptual Transcendentalism. If universal consciousness is at all analogous to our own consciousness as conceived by Transcendentalism; if it consists in the synthetical activity of a supreme understanding, holding together in one simultaneous presence all world-relations; then such a synthetical activity must necessarily be continued without relaxation from moment to moment. The result of the activity may remain identical all the while, but the synthetic process has to be maintained without interruption in order to produce such an identical result. It is, therefore, a continuance of effect, an identical filling of time, but not veritable nullification of all time through timeless being, not true subsistence in eternity, that distinguishes the contents of universal consciousness from those of individual consciousness.

From this alone there might be drawn various conclusions seriously damaging the tenets of Transcendentalism. If it were true, for instance, as some eminent philosophers assert, that only change of mental states can constitute consciousness, it would follow that universal consciousness must be entirely unconscious, because it is thought of as quite changeless. However, it is not very clear why change of mental states should be indispensable to consciousness. If I look steadfastly at a tree, I remain conscious of the presence of the same tree, as long as my perceiving faculties keep unimpaired. Why should not a universal consciousness with indefatigable faculties remain for ever unchangeably conscious of the totality of all world-relations? But, in this case, if we do not wish to pay ourselves with mere words, there arises a much more puzzling question: By what means is the synthetical activity of universal consciousness maintained in permanent efficiency? We can organically explain by what marvellous natural operations the consciousness of a human subject is kept efficient. And, as the hypostatised universal consciousness is constituted solely from analogies to individual consciousness, we ought to be able analogically to explain the source of restorative supply of a power conceived as continually expended. Of course, we may summarily settle this whole matter by a high-flown dictum; but we are therewith transgressing the sphere of legitimate thinking. The undiminished persistence of an unregenerated effect-producing power must ever remain to our mind an irreconcilable contradiction.

It is most obvious that only ignorance of the astonishingly interlaced conditions, actually co-operating in the production of natural manifestations, can seduce our fancy to project analogous manifestations into a region of unconditioned subsistence. Bearing this weighty truth in mind, it is interesting to trace the spiritual transmutation of other organic occurrences that have been dimly guiding the Transcendental mode of thinking.

Geometrical space-relations have, for instance, from early times to the present day afforded a welcome support for the assumption of an all-comprehensive substratum of existence. Geometrical figures, together with their properties, are in a certain sense necessarily implied in the very existence of space. It needs only a recognising or realising understanding to gather up into synthetical apperception the proper space-relations, in order to construct the geometrical figures therein implied, and to recognise the geometrical truths necessarily following from such permanent relations. In a similar manner all world-relations might be implied in the existence of the bearer of universal consciousness, and we should then through recognition become partakers of the eternal facts or truths involved in all-comprehensive being.

But, first of all, it is not clear how a universal understanding, fashioned after the model of conceptual consciousness, could by its permanent synthetical activity constitute anything at all analogous to space, which is essentially perceptual, essentially different from conceptual thought always taken to be unextended in all its phases. However, as with time, it will on close examination be found that in Transcendental conception space is not really annulled, but only its perception is brought to a focus, very much as in our own individual conception. Indeed, representations analogous to space-relations enter into the present Transcendental world-construction almost as fully as they once entered into Spinoza's constitution of the absolute substance. But, of what is the space of our actual world made? Whoever has realised how space-relations are throughout conditioned by specific energies and structural collocations, forming part of our individual organism, can no longer deceive himself with the idea that anything equivalent or similar to space can be intellectually realised or even vaguely imagined as subsisting without the agency of individual vitality, specifically organised from periphery to centre.

It becomes transparent, and this to an almost painful degree, in the presence of so much exalted thought and conviction on the part of Transcendentalism, that it is after all nothing but our own apperceptive faculties, potentially idealised, that are made to serve for the consciousness of a universal subject. And, to complete our humiliation as pretended recognisers of the great world-scheme, the impotence of our constructive imagination, in comparison with the rich competency of nature, discloses itself overwhelmingly in the fact that, in spite of all its straining after supreme idealised perfection, Transcendentalism has taken heed only of an inferior portion of our being; omitting almost altogether, in its constitution of universal existence, the very consummation of all faculties to which intelligence is in reality merely subservient. Transcendentalism represents indeed an apotheosis of the centripetal efficiencies of our organisation of the ingoing apperceptive current. But the centrifugal activities, the outgoing exertions, that have to mould the raw material of nature in conformity with the generical unity of purpose which we intellectually realise, and which is potentially predetermined in individual life by its definite cycle of development, during which it is gradually falling into more and more complex relational fulfilments with its environment,—all these volitional operations, veritably constituting the practical and ethical import of life, find no suitable place in the Transcendental scheme, a scheme aiming only at eternal recognition, and not at moral and æsthetic world-idealisation within actual existence, through rational employment of natural means.

It is the understanding of the consistent texture of the manifoldly interdependent perceptual compulsions in their multifarious bearings on our individual and generical well-being, that makes up veritable knowledge. And the true import of all this knowledge is the power it gives us volitionally to control and to modify the determining complex of foreign influences, so that it shall minister with as few disadvantages as possible to our individual and generical development and destination. The fulfilment of human destiny through progressive organic elaboration is the desirable result naturally aimed at by life itself; and the means to subserve this end are the suitable adaptation and harmonious transformation of all available resources of nature.

To become thoroughly efficient as conscious agents in human development we have, however, to guard against false mysticism on the perceptual or phenomenal side, as well as against the conceptual or intelligible mysticism which we have been here combating. Because the realm of things-in-themselves is cognisable to us only through its sensorial effects, or because only phenomena are known, it has appeared to some philosophers allowable to look upon the power affecting us, or the power behind the phenomena as the All-Being or the Absolute, or something containing infinite depths of reality. This Perceptual Transcendentalism is as demonstrably untrue as any kind of Conceptual Transcendentalism. Everything, in perception as well as in conception, depends on the realising agent, on the pre-established and sustained faculties of the perceiving and conceiving subject. Allow the human being in his actual state to degenerate in any respect, and where remains the virtue and beauty displayed in the higher manifestations of human life? It is, indeed, not the conceptual recognition of exalted existence, it is just the natural realisation of exalted life, that ought to be made the object of our striving; and it is the organically preserved and accumulated wealth of such life, inherited and bequeathed, that imparts to the transitory incidents of our individual existence their worth, their pathos and their sublimity.

The true mystery of it all lies in the realising power itself, in the efficiency and possible concurrence of conditions rendering realisation at all practicable and actual. It is an inscrutable power that appears to us as organised entity, manifesting the wondrous properties of life; but it is obviously the harmonious co-operation of surrounding conditions that sustains such organisation and that furnishes it with its object of mental realisation.

We have therefore, once more be it said, designedly and with growing insight into the means furthering human well-being, to regulate and to shape the conditions affecting us through sensory channels in order that we may maintain life at its present height, and may continue to elevate it still more.

Conceptual understanding has no virtue in itself. It serves us merely as unifying guidance in the suitable elaboration of our multiform environment. Only results organically wrought through beneficial influences within our natural being have real value for us. And only the diligent cultivation on our part of such beneficial influences secures a lasting possession of values thus realised. Knowledge is no end in itself. Its object lies not in an intelligible sphere, but in the sphere of sensorial influences. Its practical aim is not liberation from its natural entanglements, but, on the contrary, rational elaboration of such entanglements. In fine, our being and its knowledge are wholly natural, and as mysterious or as intelligible as the rest of nature.

III.—HINTON'S LATER THOUGHT.

By H. Havelock Ellis.

James Hinton has come to be thought of as an original and profound if somewhat obscure metaphysician, a sort of preacher of Nirvâna who somehow tried to bolster up Christian orthodoxy, who also at one period dealt in a very ascetic way with morals. There can be no doubt that Hinton himself is in some degree responsible for this conception; it may easily be traced to *Man and his Dwelling-place* and *The Mystery of Pain*, probably his best-known works. But these books represent early and comparatively crude stages of his development. It was only during the last five years of his life that Hinton's genius was adequately manifested. During that period his mental activity was immense; he wrote constantly, although he published scarcely anything. Such of his work as has yet appeared since his death is, for the most part, either confined to the immature periods, or misrepresents and mutilates the last period, an exception being made in favour of some portions of *The Art of Thinking.* When his later works have been fairly edited it will probably be found that his claim to remembrance (putting aside the remarkable and fascinating personality of the man himself, which can here be only alluded to) lies, not in these already published posthumous books, not in *Man and his Dwelling-place*, or *The Mystery of Pain*, but in works that at present have scarcely been named, and are not even known by most of those who have undertaken to speak about Hinton. Among these may be mentioned first (as it will be first published) "The Law-breaker". This is an attempt to set forth the nature of genius, especially in regard to the false laws among which genius finds itself, and to show that the genius-way of action, so far from being an abnormality, is the life of man in miniature, the laws of genius becoming the laws of man. In "Ethics" Hinton undertakes to prove a thesis of which "The Law-breaker" represents only one aspect; he sets forth a morality of which the law, to the exclusion of all other laws, is: "Attend to the facts; do what is wanted"; the natural guide being impulse made perfect by acceptance of the law, and free to accept all pleasure as well as pain. This conception, audacious as it must probably seem, had its origin in Hinton's singularly profound sense of the moral disorder now existing, and of the physical and moral evil which he found bound up with the present notion of "virtue". In "Ethics," as in his other unpublished writings, there is no attempt at construction either of a literary or logical kind. It consists of passages having, as he put it, an organic rather than an anatomical order. In "Thoughts on Home" Hinton deals with what he regarded as for many reasons a crucial question, the question of marriage; he endeavours to ascertain what is, in the present condition of society, the true relation between the sexes; and he also deals with prostitution and other allied questions. Finally, he also wrote an "Autobiography"; which again is not formal in construction, though it is a record of the highest value. It might be compared to the *Confessions* of Augustine or of Rousseau, but it is unlike either. As a revelation of the soul of genius in its nakedness of absolute passion and sincerity it probably stands alone.

It will not be possible or advisable within the limits of this paper to discuss these works in detail; that must be left till they are published. All that can here be attempted is to indicate the chief lines of Hinton's activity and the general nature of the results he attained. In order to do this it will be necessary to touch, however briefly, on Hinton's metaphysics, which was the product of the earlier stages of his thought, and which is already (in *Life and Nature*, *The Art of Thinking*, *Philosophy and Religion)* as completely before the public as it is likely to be.

When he said that "Positivism bears a new Platonism in its bosom," Hinton was indicating, as clearly perhaps as can be done in one word, his own position in philosophy, a position which is perhaps not quite easy to define. For he rises into philosophy, as Mr. Shadworth Hodgson has noted, out of common sense, science and theology. He was less of a professional philosopher than even Schopenhauer. But even Schopenhauer had a distinct relation to Kant, and Hinton, notwithstanding the more or less unconscious Hegelianisms which formed part of his method, has a no less marked relation to what is vaguely called "Positivism". It is, he says somewhere, the chrysalis of his own philosophy. And if with his affluence of ideas, his unconquerable optimism, he was sometimes eagerly accepted by those who sought support for a weak faith or an escape at any intellectual price from the trammels of the actual, we may say indeed that the fault lay largely with himself, but it must not blind us to the significance of his thought in its chief lines.

And in its chief lines Hinton's philosophy was an attempt to make a new synthesis of the discordant elements of modern thought. It was an attempt to show that, when truly seen, nature known by the intellect and nature known by the emotions—in other words, science and religion in the largest sense of each—show one and the same *action* or process. The starting-point of his first serious attempts in philosophy seems to have been a certain conception of the Absolute. Hinton, when he began philosophising, firmly believed in an absolute which might be known; not indeed known *intellectually* but *through the moral sense.* And, so known, it was not a thing but a process of which things were the phenomena, an everlasting *action*. This process he called indifferently Being, Love, God, Nature. Such was the conception with which Hinton set out, and it seems necessary to devote a few words to it, not only because it engaged so many years of his life, but also because it forms the true starting-point of much that is fruitful in his later thought, more especially his conception of nature and natural law as not merely including but surpassing man and human law, and all that follows from that conception. In later years this "Actualism," as he sometimes called it, to some extent lost its hold upon him (though he never absolutely rejected it), and in the Preface (written in 1874) to the papers which have been published under the title of *Philosophy and Religion*, he had to confess that, from being what seemed a clear perception, it had become "only a suggestion of far distant things". He wrote very little on metaphysics after 1870, and in that little there was (as is frequently found in a thinker's final stage) less of individual idiosyncrasy, more assimilation to the thought of other thinkers. But he never ceased to have a vivid sense of a *living* reality underlying phenomena. This he called sometimes Nature, sometimes God, though it had little connexion with either the scientific Nature or the theological God. This Being, or rather these Beings (for he frequently distinguished them, making Nature the nearer, God the more distant and ultimate), which his instinct for religion had thus created, became the recipients of Hinton's most intimate self-revelations. But they were not, even consciously, philosophical conceptions, and we can best study them in the "Autobiography".

It is in *Man and his Dwelling-place*, in *Life in Nature*, but chiefly in *Philosophy and Religion* (and the four volumes of printed MSS. from which that selection is made), that the early metaphysical stage of Hinton's thought may be most clearly seen. *Man and his Dwelling-place* (published in 1859) is to the reader of to-day of little interest. It represents an immature stage of Hinton's thought, nor is it perhaps the best presentment of that stage. A remarkable book it undoubtedly is, characterised by a tone of prolonged and high-strung rhetoric, an insistent earnestness which feared to leave anything to the reader's intelligence—characters, however, which scarcely foreshadowed the qualities of flexibility, suggestiveness and delicate breadth which his later style frequently attained. The second book dealt with the spiritual life of nature. Perhaps *Life in Nature* is, as a completed result, the most satisfactory of Hinton's works; it is that in which he has most adequately thought out a single pregnant idea. He has well summed it up in the Preface to the second edition, written in the year 1875, the last of his life:—"The first part tries to resolve Life into mechanism, and the second tries to prove that mechanism is Life." And he adds:—"It must seem to many a foolish task. But all I can say is that I believe both arguments; and that to me they seem to make a consistent whole; a whole which it is joyful to think true." The present paper is not concerned with any complete or systematic exposition of Hinton's opinions; it is rather an attempt towards their elucidation and criticism by the consideration of some points in his philosophy, ethics and religion. It is not therefore necessary to analyse *Life in Nature;* it is a book to be read.

How this view of the relation of the organic to the inorganic had fascinated this remarkable thinker there is in all his earlier writings abundant evidence. Hinton, with his fine scientific instincts,—who finds fault even with Herbert Spencer for not being scientific enough by endowing his "physiological units" with an "inherent tendency"—was also a poet. Not a poet who had imported into the regions of strict thought imaginative modes of thinking acquired outside—he had none such—but a poet nevertheless who had found through science and religion a vision of Nature which was at once a perfectly adequate emotional and imaginative satisfaction, a perfectly adequate moral satisfaction. This vision of a right moral world and a right physical world, which were yet one,—and that the spiritual, the *actual*, world,—never forsook Hinton. The words of Mrs. Browning's sonnet, a favourite of his own, express with well-nigh scientific accuracy this vision of a Nature—

> "With dream and thought and feeling interwound,
> And inly answering all the senses round
> With octaves of a mystic depth and height,
> Which step out grandly to the infinite
> From the dark edges of the sensual ground."

As an instance of his intensely imaginative seeing, nothing can be more characteristic than a passage that is thrown simply and incidentally into one of his letters:—"The Being I mean by 'Man' is the being I *perceive*, and about whose mode of being you might ask me innumerable equally unanswerable and indifferent questions. I haven't reasoned him out. I perceive him, nay, I love him, that is, Her; for she is by no means a 'colossal man,' but a little, trembling, quivering, passion-driven woman, throbbing with uncomprehended instincts, and afraid with timid regrets and sorrows for half-imaginary sins, which she repents of, but knows she will still commit, and does commit. I don't know about humanity as any 'colossal' thing whatever; but that little restless woman-thing I know, for she works in me, and keeps me in perpetual unrest. Would not the wave be quiet if it were not for the sea, which, when the spirit breathes on it, can let no wave be still?"

It is necessary to recollect this aspect of Hinton's mind even when we are dealing with his attempt to lay a rational basis for the harmony of intellect and the religious sense. In a paper entitled "Professor Tyndall and the Religious Emotions," which is republished in *The Art of Thinking*, Hinton has embodied his doctrine on this point more lucidly perhaps than anywhere else. He takes as his starting-point Professor Tyndall's words:—"To find a legitimate satisfaction for the religious emotions is the problem of problems of our day". That is, we have to seek for some thought respecting the universe that shall fulfil two conditions: (1) satisfy the religious emotions; (2) harmonise with the results obtained by science (that is, the senses and intellect) in their working on the universe. Now, argues Hinton, the most emphatic result of science is that there is nothing arbitrary in the series of events which constitute our experience, that they may all be reduced to law. And the most emphatic demand of the religious emotions is that the object to which they look shall have nothing of mechanical necessity. To find legitimate satisfaction for the religious emotions, then, we must seek a thought of the universe which shows it as not arbitrary and as not mechanical. Now, proceeds Hinton, the real simplicity of the problem becomes manifest. For, on the one hand, the emotions demand the exclusion of the arbitrary as much as science. And, on the other hand, science as absolutely rejects the mechanical as do the religious aspirations. To prove that this is so—that science rejects the mechanical—reference need only be made to the fact, now generally recognised, that whatever we reduce phenomena to, say to *force*, that *force* is not an absolute existence, but only a symbol, an x. "To science the world is no more mechanical than it is coloured or warm; as colour is an idea derived from a mode of our sensation, so also is force or mechanical necessity." Therefore both science and the religious emotions demand, in the thought of the universe that is to satisfy us, freedom and a necessity not mechanical. Now it is, says Hinton, that we perceive we have before us a problem which we need the aid of our emotions to solve. It is the "moral Emotions" only which can give us such a thought, call it *love*, or *rightness*, or what we will. It is only love, rightness, that is at once free and necessary; and it is that, therefore, which we must regard as the existence which presents to us the phenomena of Nature. In other words, and translated from terms of metaphysics into less questionable terms of psychology, we find that what we have been seeking is intellectual truth viewed emotionally, that is to say, *imaginatively*; that, precisely as the intellect satisfies itself by using the data of sense, so the emotions find their legitimate satisfaction in using the data of the intellect. He gives an example:—"'Cause and effect' is an universal condition of the phenomenal. Now cause and effect is the name we give to the ceasing of one thing coincidently with the occurrence of another; it has been described sometimes, even in the language of scientific men, as 'one thing *merging itself* in another'; as if it were—even when looked at from without and in mere appearance—the visible image of the giving up of one life for another's being. Now if the order of Nature truly were mechanical this would of course be a merely inaccurate expression, as implying spontaneous action where there can be none. But if material Nature be but the appearance of an existence not mechanical, but acting in ways to be truly grasped only with the aid of the Emotions, then the expression is more than justified. So far, at least, the appearance may be rationally referred to the fact; for what appearance could more truly represent an act of everlasting 'merging self into another' than this perpetual flux of cause and effect which Science presents to us?" If, therefore, we wish to find legitimate satisfaction for the religious emotions it must be by exercising them on the truths of science. Without the aid of the emotions truth never has been seen vividly or truly at all. That seems to be the substance of Hinton's argument, and it is a fine and subtle effort towards the solution of that great "problem of problems". It is an attempt to find a stable basis for the legitimate satisfaction of the soul's aspirations in the facts of the world, in science, in law, in place of (to use Hinton's words) the "partial and precarious satisfaction they still endeavour to find in claiming a sphere of exceptions to the law, or a Will *beyond* it".

Hinton has frequently re-affirmed this position as to the relation of the emotions to the intellect, sometimes rather obscurely, and it has occasionally been misunderstood. It has sometimes appeared as if he held the emotions to be a source of knowledge of the same kind as the intellect gives, as, in fact, a kind of arbitrary intellect. Mr. Sully, for instance, has unhesitatingly attributed this view to Hinton, and points out that, while sense and intellect are homogeneous, the whole process from the one to the other being continuous, when we turn to the emotions we enter a totally new and unconnected region. We are compelled, therefore, to hesitate before giving our adhesion to the supremacy of the emotions viewed thus. But, if Hinton ever held it, certainly he has nowhere explicitly stated so strange a view of the function of emotion. Whether intellect and emotion are homogeneous may admit of question, but it can scarcely be said that Hinton ever made any assumptions in the matter. His error lay, rather, in endeavouring to give stability to an already valid psychological process by converting it into a metaphysical entity. It is one thing to say that there can be no true picture of the world without the aid that imagination gives; without conceiving it, for instance, as the phenomenon of an existence which is love or rightness. It is quite another thing to say that the world actually is, apart from the conception of the percipient, the phenomenon of any such existence. It may be doubted whether Hinton, like many thinkers of strong metaphysical tendency, ever adequately realised the vast distinction between these two propositions. The function of emotion, of *imagination*, however, as a great factor in the right seeing of the world, without which sense and intellect give but an incomplete vision, involves nothing of the homogeneity of intellect and emotion. And it is as an attempt—more or less clearly apprehended—to vindicate the legitimate function of imagination as the interpreter of scientific truth that Hinton's philosophy is of chief significance.

This significance, however, has clear limits. If the quality by which his work in philosophy is chiefly marked could be indicated by a single word it might be said that Hinton was, above all, a *stimulating* thinker. It is of little consequence whether you agree with him or not; his insights, his audacities, his analogies, even his absurdities, are admirable for compelling thought. He is to be studied rather than followed. He seldom recurred to definitions; it is doubtful whether he ever attempted to formulate what he meant by the "moral emotions"; and, as every conception he touched was constantly changing and growing beneath his hands, definitions would have been valueless. Remarkable as his syntheses are, he had little of that tendency to logical analysis which has generally been held in England to constitute strict thinking. But, as Goethe said to Eckermann, "all the thinking in the world does not bring us to thought; we must be right by nature, so that good thoughts may come before us like free children of God, and cry 'Here we are'." That was the way in which thoughts came to Hinton, so that altering them was to him, as he said, a kind of sacrilege.

We have now caught a few glimpses of Hinton's Platonism. It is scarcely necessary to defend the right to existence of a Platonic synthesis of the world. Like Positivism, Platonism stands for a certain way of envisaging the universe which can at no period quite disappear. Positivism, that view of the world which is born by a kind of parthenogenesis of Science alone, can upon special points always maintain its position; "yet it may be," in the words of Lange, "that the whole picture of the world which Platonism affords stands nearer to the unknown truth: in any case it has deeper relations to the life of the emotions, to art, to the moral functions of mankind". Hinton sought to vivify Positivism by contact with these things. He held that the Platonic process must be repeated in new relations. It must be admitted that this new Platonism exists more as a promise than a performance. The brilliant *imago* has scarcely yet emerged from the chrysalis. Hinton's imagination sometimes ran wild in the large liberty of metaphysics; his vision was not enough circumscribed to produce a good philosophical system; he saw things in too diffused a light to be able to arrange the shadows of a great and complete synthesis. If he had done no more there are but few to whom his work would appeal. But although one feels compelled to touch first of all on Hinton's philosophical conceptions,[1] he claims our attention more especially as a speculator in the sphere of morals. And it is not perhaps too much to say that as such, as a moral teacher, he is chiefly worth listening to.

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[1] The reader who is interested in Hinton's philosophical opinions will find some technical appreciations, which are, on the whole, good though fragmentary, in Mr. Shadworth Hodgson's Introduction to *The Art of Thinking*, and in reviews by the same writer in the *Academy*, 14th Jan.,

He himself felt this, and during the last five years of his life ethical problems held the first—almost the sole—place in his mind. In his ethical writings we find the dawn of a direct simplicity, a clear grasp of reality, a patient study of facts which were not the most striking characteristics of his earlier metaphysical stage. He could not approach such questions as of purely theoretical nature; they appeared to him to touch the very life and being of society. To-day, when the interest taken in ethics generally is so great, when ethical problems come before us with an increasingly practical significance, it may be worth while to consider briefly what Hinton had to say on such questions.

Two distinct periods may be traced in Hinton's general position in regard to morals. In the earlier stage his ethical exactly corresponded with his metaphysical conceptions. As he thought that he found the key to the relation of man to the universe in the doctrine of the self as a negation, so in the same doctrine he saw the key to man's relation to man. The "one word" of his earlier ethics was *sacrifice*. A passage in his MSS. (written about 1858) well illustrates this transition from metaphysics to morals :—"How that idea of self-sacrifice (as the source of all life) is involved in the correlation of forces ! 'Each force merging itself as the force it produces becomes developed,' says Grove. This is the very fact of creation, the exact statement of that self-limit which is creative action. And this is the phenomenal, the 'instinctive' view of Nature. This has an exquisite beauty; the instinctive view of Nature is the exact fact of creation, a force giving up itself that another may be. Well have I said that Nature, ever and in each of her changes, presents to us directly God's creative act; this chain of cause and effect is an infinite presentment to us of self-sacrifice. So Nature presents to us physical self-sacrifice, destined to be superseded by, interpreted into, moral self-sacrifice. Through necessity is physical self-sacrifice seen to be moral self-sacrifice." And we shall find that at this period, and indeed always, sacrifice is involved in Hinton's ethical conceptions. All life, he was never tired of saying, is a martyrdom. In the *Life and Letters*, as well as in *Philosophy and Religion*, we shall find reiterated with passionate emphasis the assertion that self-sacrifice is the

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1882, and especially MIND, April, 1882. Reference may also be made here to an article entitled "The Hintons: Father and Son," by George Peard, which appeared in the *Contemporary Review*, May, 1878, and is remarkable for its critical insight, considering the limited nature of the data at the writer's disposal.

condition of happiness. Such an assertion has in all ages been found the expression of their deepest experience by men born with a genius for conduct.

It is to this phase of Hinton's thought that *The Mystery of Pain* belongs. *The Mystery of Pain* starts with the recognition of two great and undoubted truths: (1) the evil in man's life; (2) the unconscious element in all existence; and Hinton seeks to connect these two by affirming that the latter explains the former. The coldness of one we love, he argues, gives us pain, but were we to find that that seeming coldness conceals a real affection our pain would be no longer pain but joy. And if there should exist a cause which would explain all the facts which give us pain, that pain likewise would be no longer pain but joy. There is such a cause, says Hinton, but it is unknown. Therefore all pain, taking the word in its most comprehensive sense, may be looked upon as the working out of the redemption of the world, as martyrdom. It follows from this that the man in whom the enthusiasm of humanity is so strong that he devotes his life to the service of his fellows and also the man who is knocked down and killed by a passing cab are, one and the other, sacrificed for humanity. It is a consequence that may possibly be accepted by some, but it is necessary to point out at what cost we must accept such a conception of sacrifice, which robs martyrdom of all those elements of enthusiasm and renunciation which are its charm and its power. This vast increase of redemption rests, as Hinton insists, on a gigantic act of faith. It seems indeed that a fundamental misconception underlies *The Mystery of Pain*. It may be true that there is an unseen fact beneath all that we call consciousness. We are right, doubtless, in making use of the hypothesis of an unknown fact to explain such a phenomenon as sensation. But the question arises whether we are justified in bringing it in to explain pain, to explain, not the cause, but the purpose, of pain. For it cannot be said that the origin of pain, and the essential part it plays in the development of the individual and the species, are in need of any such mysterious explanation. It was against such teleological conceptions, as he remarks in *Philosophy and Religion*, that Hinton was always fighting, and having banished design at every point from the domain of the physical he seems in giving it this emphatic assertion in his psychology to have mistaken the tendency of his own thought. For he was never weary of repeating that the physical and the spiritual are one, and it is strange to find a thinker whose insight was often so penetrative, in his eagerness to gain what he thought a greater religious consolation, bringing this discord into his conception of the world. He has himself supplied what is at once probably a truer and a nobler conception of sacrifice:—"Sacrifice is good, but only when it is for service," traceable service, as latterly he always insisted.

Criticism, however, seems almost out of place in speaking of a book which, although it appeals to argument as much as to faith, is touched throughout by the glow of emotion, and finds its home, if anywhere, in the heart. One would not rob the gentle and sorrowful souls to whom it has brought comfort of such consolation as it may be able to yield. Earnestness, sympathy, suasion, it has unquestionably, and such qualities are good. Nevertheless, Hinton himself in after-days very well described what he has here done. "If we shut our eyes on that which *is*," he wrote, "and construct for ourselves some ideal heaven to satisfy the craving of our moral nature, we are making impossible to ourselves all true interpretation of the facts of human life."

It was not till some years later that Hinton modified his ethical conception. It would be more correct to say that he enlarged and completed it. The impulse to self-sacrifice, the renunciation of the individual desires to a something outside them which is greater, a something which, describing it by a word which denoted what they thought highest in themselves, they called a Will, men have always felt; and they have felt that that Will could be nothing less than Divine. But it is obvious that such a thought cannot become more than a very faint approximation to a guide to conduct; and even to that extent a guide as likely to lead in a false as in a true direction. The conception by which Hinton sought to supplement it may be described, like the earlier one, in a single word, and that word, *service.* By sacrifice he had meant the willing acceptance of pain, all thought of self being cast out; by service he now meant the acceptance of pleasure also, the thought being still not on the self; that is to say the acceptance of all things, either pleasure or pain, that *served*. Hinton did not claim, nor could it be claimed for him, that such a conception was new. But in many of its bearings it assumed in his hands a fresh significance.[1] When so venerable and familiar a word is brought before us as representative of the ethical aim we fail at first to realise that it may connote conceptions which are unfamiliar. We have no thought that it may imply a disintegration of old ideals. But Hinton by asking of everything: Does it *serve*? made service involve nothing less than a complete revision of the old conceptions of virtue. Moral problems were placed on a new foundation, although Hinton claimed it as substantially that laid by Christ. Selfishness, the great deterrent from right action, is simply the absence of true regard. A true morals, like a true science, is only an accurate response to fact. Morality is not a matter of goodness but of true relation to facts—a relation which must be fluent, which cannot be rigid. "If two persons are hungry, another and I, and my feeling only responds to the hunger of one, it may, or it may not, be wrong, but assuredly it is untrue—as untrue as there being four of anything and my thinking there are but three."

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[1] It is obvious that he thus escaped at once the debates which centre around the word "happiness". Happiness must always be found, as Mr. Herbert Spencer has pointed out, in every ultimate analysis of the ethical end; but it does not therefore necessarily enter into the ethical aim. In

It has very generally been held that service (or some similar conception) represents the true law of morals, but it is said that the law of service is embodied in certain rigid rules and institutions. The thought must be on good and also the action must be according to the rule; that is to say, there is both an internal right and an external right. It is at this point that Hinton separates himself from those who (as they believe, at least) accept the Christian theory of morals. It was, he said, a waste of energy. Two things were to be thought of when one was sufficient. And, as we see, practically it is not done; either the internal law is sacrificed, or the external, or both. The highest goodness of the accepted type becomes the luxury of the few. Viewing morals thus as a force to be treated dynamically, Hinton found that the natural moral law was really an easy one, and that if truly taught it might be followed by those who are now thrust outside the pale of virtue; it permitted that tendency to impulse and the free play of passion which is so largely engaged on the side of evil. For the throwing off of the external right is the liberation of a great new force; it means nothing less than the freedom of pleasure, of impulse. When the restraint is placed on the feeling the action becomes free. "There is nothing in restraint; no reason any pleasure, any impulse, should not be; and so the whole freedom of all joy. Only one thing must be, and always,

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Hinton's conception the entire ethical aim was covered by service. Happiness cannot be attained by pursuit, said Mill. Or goodness either, added Hinton. Let your impulses respond to fact, and you attain both happiness and goodness.

never wanting." And that "one thing" is a true regard to facts. While *service* is the end which must be attained in a true moral action, the natural guide to service is impulse. "What I look to," said George Eliot, "is a time when the impulse to help our fellows shall be as immediate and irresistible as that which I feel to grasp something firm if I am falling." The best action is automatic. Hinton would agree with Mr. H. Spencer that "the sense of duty or moral obligation is transitory," representing but one phase of man's development; but while Mr. Spencer places such abolition of duty in that remote future when men shall be able to fulfil instinctively laws which are substantially those now accepted, Hinton would mean that a true regard to facts, a response to needs, would be both the natural impulse and itself the only law, to the abrogation of all other laws; and that this end was more readily attainable than the complex moralisation for which Mr. Spencer looks.

But the law of service was not merely easy, it was the natural law. An arbitrary rule, an institution, must be opposed to the fluency, the ever-changing relations, of nature and fact. There is nothing fixed in nature; there are laws of action or being, but no rules of things. To be rigid means to be dead. It is not possible to say of anything, Hinton argued, that it is always good or always bad. It must change with its relations. It is here that he shows the influence of his scientific training. No one trained in physical science could ever have regarded nature as Mill regarded it. Nature is the Devil, said Schopenhauer; to Hinton it to a great extent took the place of God. He almost constantly personifies it. It is Hinton's distinction that he is probably the first man of ethical genius who has been deeply and consciously impressed with the methods of science. It is true that Emerson, whose genius was so largely ethical, was singularly sensitive, as Professor Tyndall has so often insisted, to the scientific spirit. And Hinton has recorded his impression that had Emerson been trained in the methods of physiology he would have "interpreted the world". But it can scarcely be said that Emerson has opened up any new paths in moral science. It was not till within the last five years of his life that Hinton attained a comparatively final ethical conception. Previously his position had been fairly well described by the word "altruism" which many years previously he had eagerly adopted. Even in the little paper called "Others' Needs," published in *The Art of Thinking*, this altruism is quite distinct, and he never entirely abandoned the altruistic phraseology. His latest attitude seems to have been the result of, if it was not coincident with, that careful collection of social and especially moral facts which during the last two years largely replaced theory in Hinton's MSS. These data are of considerable interest and will, when collected, be found of distinct value for the study of moral phenomena.

Altruism, therefore, gave place to the study of facts, apart from either others or self: "Think of others" became "Think of what is wanted". "The real power," he wrote during the last few months of his life, "is not in trying to think of others, but in thinking of facts, *in attending to the traceable.* By doing that, the transferring of the thought to others is brought. To think of others directly, instead of through the effect of thinking of the traceable, is really a delusion." Hinton still used the word "altruism," although the conception was slightly altered. To make it mean merely sacrifice, he said, is to make it absurd. That is "making oneself, and not the good of others, determine it". And even so early as 1871 he thus criticises what had been a favourite expression of his own: "Not the self cast out but its rule; it is as the sense-impression in thought remains for *use;* but knowledge *is* the casting out of its rule". The question was, not: What is the law? How readest thou? It was rather: What are the facts? What do those facts call on us to do? The major premiss in the ethical syllogism was always: It is natural to do what is wanted.

Hinton speaks very clearly regarding the present social condition. It would be difficult to surpass the occasional energy of his denunciations regarding the unnatural greed of wealth—a greed which, as he pointed out, would be recognised as such, and treated accordingly, in any other relation of life—and the sharply defined divisions of class. It was, however, in the present state of the sexual relations that he found most evil. The selfishness of monogamy and the home, the cruelty of virtue, the rigidity of arbitrary rules and feelings in regard to all such questions seemed to him unparalleled before in Christendom, or out of it. In the Protean evils which are grouped around that part of life Hinton found a *reductio ad absurdum* of the present morality. It was partly because the evil he saw was so intense, although chiefly because of the power here stored up and waiting to be liberated, that he felt that around the question of marriage the chief battle of morals would have to be fought. When that was won, when it was possible to follow traceable needs even there, everything would be won.

Hinton always said that he was enabled to reach this latest and most important development of his ethical thoughts—the fluency of right—by the study of pictures. It was not till late in life that he became interested in art, and although he had a keen feeling for the art-process, he had little technical knowledge of painting. Indeed he possessed no true æsthetic feeling at all; there is probably not a single word in all that he wrote which indicates any sense of what he would probably call "thingal beauty". He ignored things as well as individuals (as nature does), and saw all as processes, or parts of a process. Pictures were never a passion for Hinton as music was; but while he learnt little from music (and what he wrote about music occupies only a few pages) he learnt very much from painting. He saw the art of the painter as a great living process, true to the make of nature, and therefore (he would hold) to the make of man. The world of art was a world where all details are subordinated to the whole, where all truth is a truth of relation, where nothing exists by itself; a world where the conservation of energy rules, and where the best is the easiest. It is perhaps necessary to point out that Hinton chiefly occupied himself with landscape-painters, and especially with a group of artists who are marked by many features in common — Turner, Constable, Dupré, David Cox. The painter, as Hinton saw him, is bound to cast out the "self-rights" in everything he paints; he has attained perfect freedom from restraints, the right to do *anything;* and in doing so he is but following nature's method. In seeing this Hinton saw implicitly the law for man's action, and found it to be the explanation of morals, and one with the lesson of science. "It is the same in morals as in art. Truth is truth to nature; goodness is goodness of nature." Life also is an art, the laws of which are revealed in the other arts. That art has always had a close relation to life Hinton found little difficulty in proving, and he endeavoured to trace out how a false moral code has never been able to exist at any great art-period, although the disintegration of the false morals has not necessarily meant the establishment of the true. "Morals cannot stand before a paint-brush. It never has; visibly it never can."

It will be seen that to Hinton the change he foresaw came as the destruction of morals. It was the breaking down of all outside restrictions for the reassertion of the law on the heart. There is a passage in the Introduction to Taine's *Origines de la France contemporaine* in which that writer enumerates those things in the abolition of which civilisation has consisted. With very few deductions the same passage would also be a summary of those things which Hinton held to be not only permitted but necessary when the law of service is recognised. It must be pointed out, however, that this last result of Hinton's thought is clearly related to the thoughts with which he started. It is all contained in embryo in his earlier writings. This Hinton himself, though he was careless of consistency, especially insisted on. There is nothing so clear in his earliest thought as the doctrine, embodied in the word "Actualism," that the world is a process. It was easy to add that the external rule, the law of the letter, was "nothing in the world". He always held that the development of his thoughts was perfectly continuous, that *The Mystery of Pain* really contained the half of his whole moral thought. In that book he had tried to show that pain must be accepted at the call of good; all that remained was to see that pleasure also must be accepted. The two together formed his entire thought. It has been pointed out that his metaphysical thoughts gave him the first key to ethics. In the same way (he tells us) he found in his earlier ethics the key to understand art. It was because *The Mystery of Pain* had shown him sacrifice that he was able to see what art had to show him.

It is still necessary to say a few words in completion of this brief sketch of the chief lines of Hinton's thought, although in doing so we are returning to some of its earlier aspects. We have seen something of his attempts towards laying a scientific basis for religion; we have yet to see how he dealt with religion from the emotional and practical standpoint. It is here, where his scientific instincts are latent though still implicit, that Hinton's genius for religion is at its clearest, and that, speaking from his own deepest experiences, he shows himself at one with those of all religions who have most firmly apprehended the mysteries of the soul. It has been necessary to point out how indefinite and obscure Hinton's theology was; he would at one moment deny with intensity of emphasis the figment of a distinct spiritual world, and at another speculate, somewhat languidly indeed, about the possibility of "extra-human beings," argued from supposed traces of their influence on man's history. For the man who seeks to *know*, to co-ordinate the facts of the world around him in an intelligible whole, such inconsistencies are an unmixed weakness. But to the man who desires to *see*—and Hinton had sacrificed all to become "a power of seeing"—this indifference to paradox is an element of strength. As M. Renan says of the mingled theism, polytheism and pantheism of Marcus Antoninus, all those shifting modes of thought are necessary to a true insight. The book of religion *par excellence* was for Hinton the Bible. He found all his own thoughts implicit in the Bible. But to do so he had not only to read between the lines, but the lines themselves under this process of interpretation sometimes vanished altogether. The Bible became a palimpsest. Had Hinton been familiar with the Talmudic and Alexandrian schools of exegesis and what results were rendered possible by their methods, it is difficult to imagine he would have fallen into a like maze of fancy. It is probable, indeed, that he actually realised its invalidity and in the "Autobiography" he compares his use of the New Testament to the use the New Testament writers made of the Old. The character of this method—which is so persistent throughout Hinton's MSS.—and its curious resemblance to that of the Fathers most touched by Gnostic influence may best be shown by an example. Clement of Alexandria finds that Abimelech looking through a window at Isaac sporting with Rebekah is a type of Christ, and asks:—"But what was the window through which the Lord showed Himself? Doubtless it was the flesh wherein He was manifested." This of Hinton's is parallel:—"'Of the water of life freely'. Is there not something farther to be seen here? Why *water?* Which is the hydrogen and which the oxygen?" Or this, speaking of the analogy of spiritual action to the wind rather than to vapour, and how inspiration is a breathing:—"Does it not mean that balloons are not to be permanently a failure?" And again in the last year of his life he writes, in a passage less absurd but perhaps more characteristic:—"Thinking of the sacrifice of Isaac, observe: the bound thing is all ready to be slain; is on the point of being so; and so was not the 'reason' at the very point to be killed at the time of Copernicus? And this bound thing is—because so bound and ready to be slain—to have full dominion; it is to rule and rule perfectly. (So with the *emotions* now). And the 'ram' might have two interpretations; it might be the fact in Nature which gives the interpretation. Or is it rather the false attitude of mind, the yielding to sense-impressions, the not-regard?" But the insight is there nevertheless, and whenever Hinton abandons the search for a scientific metaphysics, the strange and fanciful exegesis, when he deals rather with what he called "affirmations of the moral sense," his words often attain with perfect sureness the expression of those aspects of the world which satisfy the heart. "The true aspect of religion," he says, "is not: Things are bad—take care;

but: Things are good — understand and know". And again:—"Religion is truly the home-feeling of the universe". And in words that at once justify and interpret the charm of Jesus he says:—"Is there not something beautiful in the thought that sin pertains to the individual and exclusively so—not to man? Only so deep as the isolated individuality extends can sin extend. And thus it is that sin can be 'washed away'; because it is superficial; because into the actual fact of man's being it does not enter. The sin has stained the self, not the *man*. And an entirely new thought of the world comes with this. Amid all this sin is the sinless Man; and we who are sinful are to be brought into one with Him. 'By Man came also the resurrection of the dead.'" He sees at once what the men in all ages who have been profoundly dominated by the religious consciousness have never failed to see, that man cannot be put in an emotionally right relation with the universe without undergoing a process of subordination. This renunciation of the self has never been found very susceptible of a scientific presentation; it involves, indeed, the converse of the scientific process. Science seeks to express nature in terms of man, and religion can find no rest till man is put into terms of nature, of the universal. Its affirmation is: "Fecisti nos ad te et inquietum est cor nostrum, donec requiescat in te". It is impossible to say this more clearly in the language of religion than Hinton has done. "If we were self-sacrificing," he says, "we should see that nature is self-sacrifice." And the self he defines as "the way we feel the absence of God". *Philosophy and Religion*, which is full of these flashes of insight, is especially marked by its insistence on this negation of the self as the only condition of joy and freedom. It is like Antoninus's acceptance of all things that come from nature, as coming thence whence we ourselves come. It is the *Theologia Deutsch*:—"Nothing is forbidden and nothing against God, but one thing alone, that is, self-will, or that man should will otherwise than the Eternal Will". It is Christ's:—"He that loseth his life for My sake shall find it". And what is the reward of this renunciation? Let us hear Hinton on this point also. It is joy and freedom, he asserts, that are the end of religion; self-sacrifice is only the condition, though it may be a condition that is often less, consciously, a condition than an end. "To the man who thus acts with Nature, failure is not nor can be. He does not succeed in life; his life is success. Even as Nature is not moral, because it is morality. Success cannot have success, even as morality cannot have a moral. Success is yoked to his steps and cannot leave him; nothing can bring to him other than constant good. Nothing should disturb such a man's equanimity; for all wrongness and loss are nutritive, the means of higher ends. Whatever happens, my *Life* has been and is; Nature has accomplished her ends, God has accomplished His; and therein I mine. My will is done because and while it is one with *The Will*. This is success, to find, in all events, my Life."

No one who had so clearly realised the essential conditions of the religious life could fail to see the profoundly irreligious character of much of our popular theology. Hinton is perfectly clear as to what is and what is not of religion. The desire for a personal God, the desire for a future life—whatever value these conceptions may have had for humanity, whatever may be said about them as scientific truths—are not of religion. Love and self-sacrifice, rather than these, have ever been felt as the truly religious facts by those who have most clearly apprehended religion. And Hinton is never weary of insisting that it is not by any vision of a self-contained God that "salvation" is possible; it is by love and self-sacrifice, the self-sacrifice that was supremely displayed in Jesus; and it is towards man that the developed religious consciousness is turned. We have heard much of the scientific objections to the notion of "the magnified and non-natural man". But Hinton's revolt against a conscious and thinking God was emotional even more than intellectual. What he desired was a God to love more perfectly, more naturally. This God is the infinite God, Love; the love of whom is love of Being, is eternal Life. "The heart delights in Love too great and pure to be personal." And he says elsewhere:—"He cannot be God that *can* be denied; God must be such, the denial of Whom is a contradiction in terms". And when we do personify our God, it can only be in man. "Humanity is the Being, the object of love."

The modern character of Hinton's genius is nowhere more distinctly seen than in these religious utterances. Even at the moment of highest emotional inspiration—and indeed chiefly then—he never loses sight of reality. His religion is *natural* or it is nothing. It was the religion of one who had found no end worthy to follow by paths of science or paths of religion but Nature—that Nature whom he had "known so long and half loved and half feared and wholly served".

It is these gleams of immediate intuition into the heart of the religious emotion, standing clear for all those whose experience has taught them to know it; it is his insight into the conditions of a moral law which is service and only service—these are the things that make Hinton's work significant. They are not less interesting from a something of paradox about them. He was a man of fine scientific sense with a joyous acceptance of all scientific advance, and there are accents in him which have the ring of Antoninus and the Catholic Mystics. He was brought up a Calvinist; there was an element of Puritanism, a thirst for martyrdom, ingrained in his nature; and, with passionate gaze set on the future, he saw, enfolded in the dynamical relations of modern society, the vision of a moral life which was at once perfect freedom and perfect good.

Hinton represents, as one individual is rarely permitted to represent, a process of complete transition. It is a process that goes on, one way or the other, in all ages of intellectual activity; we may see it in our own age. But in Hinton the process is epitomised. He illustrates the progress between two antithetical principles, between law and morality on the one hand, and freedom and impulse on the other. He began with saying that life is self-sacrifice and martyrdom man's destiny; he ended by also asserting the gospel of genius; "Pleasure is free; passion need not be restrained". This process of thought, the passage between these two principles, and their mutual reactions, produce a resultant which is an attempt towards the harmony of both and adds a charm to Hinton that is seldom found in any thinker. It is a process less frequently presented in thinking—the "art of thinking," as Hinton called it—than in art. In art, indeed, the transition from law to freedom is often traceable; in Turner, who was specially attractive for Hinton, it is very distinct. He found in art a clearer revelation of that new birth of freedom and impulse which was taking place within his own soul.

Hinton has been called a mystic; and if mysticism may be regarded psychologically as the union of new thought with emotion, or indistinct ancestral thought, probably he was a mystic. Whenever a sudden influx of intellectual life intrudes upon the more slowly growing spiritual life of humanity, men endowed with the immense enthusiasm, the free wide-ranging speculation, the power of fusing the incongruous elements of thought and feeling which Hinton possessed, are certain to arise. Such men may be in appearance widely separated. Joachim of Flora, who was so widely read at the Renaissance, and some of whose gnomic sayings are curiously like Hinton's, was probably a man of this type in the 12th century. Diderot, the Pantophile, as Voltaire calls him, the Panurge and Prometheus, as Michelet adds, of the 18th century, held this position in regard to the French Revolution. But they are best seen in the 16th century, in certain men of the middle Renascence, Leo Alberti, and (in their work) Piero della Francesca, Botticelli, Filippino Lippi. These men in their union of science and devotion and audacious impulse, in their curious mingling of Christianity and free thought, belong to the same class as Hinton. One can see something of Hinton's eager, versatile, inquisitive, yet child-like nature in his face. It resembles that of the best type of English labourer, expressing an immense capacity for work and enjoyment; with, however, something else superadded which is born neither of his intense and subtle intellectual energy, nor even of his emotional devotion to Nature. For if he has not the strangely keen and complete powers of Leo Alberti or the massive momentum of Diderot's intellectual energy, he has that which is even rarer and which finally distinguishes him from this whole class—his profound and pervading ethical instinct. We have seen something of the results which this instinct, guided by the scientific spirit of appeal to fact, and supported by what he believed to be the spirit of Jesus, had to say in face of the social facts of to-day. In reality Hinton was a product of his age; his conceptions and methods had a deeper root than he himself probably ever suspected. He was allied to three great influences which will perhaps be found the chief moulding forces of the latter part of this century.

Among these Science has every title to be first. Hinton never underrated his debt to Science, although he saw very clearly the danger of a narrow conception of Science, or an exclusive devotion to it. He sought to do in morals what, in an equally remarkable though less clear-sighted manner, Walt Whitman has sought to do in literature—to bring into life the new conceptions of human freedom and development, the new ideals of love and purity, which Science has made possible. He said that all he had seen was simply the working out in ethics of the conservation of force. It is probable, indeed, that this and the Darwinian laws (carefully avoiding the confusion commonly made between these and that philosophical doctrine of evolution from which they are in reality quite distinct) will occupy the same place in the next great movement of the race as Newton's law of gravitation occupied in France at the latter part of the last century.

How much Hinton learnt from Art, and how intimately, he believed, the problems of life are connected with it has been already said, and it is a fact of great interest. We have seen too how singularly opposite in many points the gospel of Art that Hinton found was to that contained in the jewelled eloquence of Mr. Ruskin's fervent, if rather strained, moral analogies. Hinton's life covered nearly the same period as that of perhaps the greatest imaginative artist England has produced, and the last years of his life were synchronous with the appearance of that new æsthetic feeling which is only now beginning to come into life and which must necessarily be of slow development.

When Hinton wrote the various tendencies which we recognise collectively as Socialism had in England scarcely taken definite form. One who held, so strongly as he, that "overthrowing society means an inverted pyramid getting straight," would probably to-day, however, be classed among extreme agitators. And it was Hinton's desire, apparently even his distinct purpose, to make some attempt towards the formation of a new society, although he held that such must not be a merely individual effort. His attempts in that direction would have been characterised by insistence on the moral aspect of every revolutionary change. The aim must be true before the life can be true; but we must work *from without inwards.* The moral worth of the external change lies in its dynamic relations to the life of the spirit. The material and the sensuous have this incomparable significance, that they carry within them the force which can liberate the soul. It may be that some new birth of social life waits for us in no very remote future, and Hinton's immense enthusiasm and profound moral insight can ill be spared in the work of reorganisation. With the complete publication of all that he produced, these qualities will yet be found to set a final seal of fascination upon his life-work; and if we are approaching such a renascence Hinton must be counted among its first prophets.

IV.—RESEARCH AND DISCUSSION.

FREE-WILL—OBSERVATIONS AND INFERENCES.

By Francis Galton, F.R.S.

The cases appear rare in which any of the numerous writers on Free-will have steadily, and for a long time together, watched the operations of their own minds, whenever it was engaged in such an act, and discussions on Free-will have certainly been much more frequent than systematic observations of it.[1] Consequently, for my own information, I undertook a course of introspective inquiry last year: it was carried on almost continuously during six weeks, and has been proceeded with, off and on, for many subsequent months.

As the results were not what I expected and as they were very distinct, I publish them, of course on the understanding that I profess to speak only of the operations of my own mind. If others will do the same, we shall be hereafter in a position to generalise.

My course of observation was that, whenever I caught myself engaged in a feat of what might fairly be called Free-will, I checked myself, and recalled the antecedents and noted any circumstances that might have influenced my decision, and forthwith wrote down an account of the whole transaction. After I had collated several notes I found that the variety of processes to be observed was small; I therefore discontinued my notes but maintained the observations, until I felt satisfied that I could describe as much of what goes on in my own mind as falls within the ken of its consciousness.

I may say that, after some preliminary maladroitness had been overcome, I did not find the task difficult, nor even irksome; not nearly so much as in other introspective inquiries I have made. It is true that facility in any kind of introspection is difficult to acquire; it depends on the establishment of a habit something like that of writing in the midst of avocations. When the latter has once been attained, the writer recovers the thread of thought that had been dropped at each interruption, and rarely finds it broken. So it is with introspection.

The word 'Will' is of course applicable to more acts than the word 'Free-will,' as it accompanies many that are obviously automatic. I did not occupy myself about these, of which I will merely mention the chief, to show that they have not been overlooked.

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[1] I only know of one such course, by Mr. Henry Travis, in MIND V. I did not read that article until after my own inquiries were finished. We do not cover exactly the same ground, and so far as we do our results differ.

All that depends upon constitutional tenacity of purpose is to be suspected of automatism. A man in whom this quality is conspicuous, is spoken of as obstinate. He is frequently likened to some brute animal, which shows that tenacity of purpose is not popularly considered to be of a high order of psychical activity. Thus an obstinate man is vulgarly said to be as obstinate as a mule or a donkey, or, more vulgarly still, as a pig. It is more proper to consider tenacity of purpose as antagonistic to freedom of will, as in a madman who is constrained by his monomania. A block of wood or stone gravitates obstinately, and if it were conscious of the act might be said to have tenacity of purpose.

The appetites are among the motives that automatically direct the Will, for it is proverbial that they make men their slaves. I did not trouble myself with any acts that were determined wholly by them.

Lastly, I did not care to trouble myself with cases in which two motives of the same kind were in conflict and the greater prevailed. There is no more anomaly in these than there is in the heavier scale-pan of a balance descending.

The events with which I did concern myself were those in which feelings of different quality had been in opposition, as when the appetites or passions had been thwarted by alien influences, and I endeavoured to infer from a comparison with past experiences, how far the issue of each contest had really at any time been doubtful.

I began my observations under the belief that I should be seriously embarrassed by their number and frequency, and I spent much preliminary thought over different methods of dealing with otherwise overwhelming multitudes of data. I was also prepared to find that the origin of the motives by which my Will was determined, lay usually too deep to be reached without severe and persistent effort. Great then was my surprise in discovering, after I had fairly entered upon my observations, that the occasions were rare in which there seemed room for the exercise of Free-will. I ultimately reckoned that the rate of occurrence of such interesting cases, during the somewhat uneventful but pleasant months of a summer spent in the country, was less than one a day. All the rest of my actions seemed clearly to lie within the province of normal cause and consequence.

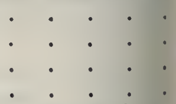
It will of course be understood that I do not commit myself to the absurd assertion that I was able in any one case to record every convergent motive and the history of each of them, how it was induced by such and such circumstances, and these again by others, and so on *ad infinitum;* but I mean that, in whatever one direction I cared to follow the track backwards, I found it to be continuous and orderly until it led to a tangle of familiar paths whose issues were well known. I believe however that, if I had undertaken the inquiry in youth, when the number of my past experiences was only a fraction of what they now are, I should have found it much less easy to persuade myself of the frequency with which I act as an automaton.

After these prefatory remarks, I come to the results. It will be best to begin with what I observed to be the usual conditions of irresolution. When I was distressed between opposite motives and the Will delayed to act, my irresolution seemed due to one or other of two or even three states, sufficiently different to be described separately, though having much in common.

The first was that in which each of the alternative plans became less attractive the longer it was looked at, until it grew indifferent or even repellent; then the attention lapsed to the other alternative; and so it swung to and fro, incapable of wholly fixing itself upon either.

The second was due to a fitfulness in the growth of the desire to change, accompanied by frequent retrogressions, and to an equally fitful waning of the wish not to change. The resolution was delayed until a considerable rise of the new desire corresponded with a sudden fall of the old one. Without caring to specify grandiose examples, I may say that in the daily act of wakening up and rising in the morning many instances of this occurred.

The same process of rising afforded excellent illustrations of a third form of irresolution, which is, I think, of especial interest. The conditions I have in view are—no particular call to get up, a comfortable bed, and a disinclination to leave it. My mind is then nimble and much more than half-awake, and I have a general sense of complete adaptation to circumstances, but a faint voice, as out of a different condition of things, preaches to me the merits of early rising. To this I may give intellectual assent, but, before it is possible for me to will to rise, the Ego that is subsisting in content must somehow be abolished and a transmigration must take place into a different Ego, that of wide-awake life. What I mean, is well expressed by the colloquial phrase of "turning over a new leaf". The mind is shifted into a new position of stable equilibrium, and it is just at the momentary heave of tumbling over into it, or, as it is sometimes expressed, at the moment of "making up the mind," that the wrench of will is felt. There is a somewhat similar sense of discomfort when a visual object has been interpreted in a particular fashion, and suddenly a different interpretation of it is forced upon us. The simplest example of this is found in the successive ways in which we apprehend a system of dots disposed in parallel lines and at equal distances apart. We may view them in lines that are either horizontal, sloping from left to right or from



right to left, or vertical. After looking at them in one aspect, another unexpectedly forces itself upon us, and at the same moment we have a slight sense of discomfort. In other examples the discomfort is more severe and amounts to a mental wrench, though much less acute than that which accompanies the "turning over of a new leaf," because the emotions are hardly engaged.

The conditions under which the "transmigration" of which I spoke took place, were various. Sometimes it was due to the momentary triumph of the waxing over the waning desire. Sometimes a velleity produced a will by aid of an artifice, seen through but not regarded. It did trigger-work only, neutral as regards the immediate future but which, like lazily pulling the string of a shower bath, produced an abundantly awakening effect after a short interval. The determining cause of the Will to rise was sometimes a slight accidental stimulus. On one occasion it consisted of two very light taps against the window, caused by something blown against it. This aroused no special association but was as effectual as any other slight sense-stimulus might have been, to rouse the sleepy Will.

I suspect that much of what we stigmatise as irresolution is due to our Self being by no means one and indivisible, and that we do not care to sacrifice the Self of the moment for a different one. There are, I believe, cases in which we are wrong in reproaching ourselves sternly, saying "The last week was not spent in the way you now wish it had been," because the Self was not the same throughout. There is room for applying the principle of the greatest happiness to the greatest number; the particular Self at the moment of making the retrospect being not the only one to be considered.

I will now speak of instances in which incommensurable motives had been pitted together and the one that was not the most keenly felt, nor gave the greatest pleasure in any sense of the word, emerged triumphant. Here is a case of a very common type which shows how easily a very feeble voice of conscience may win. I condense it out of my note-book, changing details for obvious reasons.

"An acute sense of annoyance and irritation came over me as I thought of some interests of mine that had suffered owing to an old friend's having neglected to read a letter with ordinary attention, he being, as I knew at the time, much engrossed with his own business. Then the thought arose 'So much irritation is unjustifiable; he certainly did not mean ill, and he has on past occasions helped me much'. There was no emphasis in the mental expression of this thought, nevertheless I felt sure from vague memories of past experiences that it was bound to prevail. It did so, by gradually cutting off the supply of irritation. The angry feeling however broke out after an interval, and was twice exorcised subsequently by the same process; so I had a threefold experience."

Here the opposition occasioned no struggle, and was accompanied by no balancing of pleasures and pains. A passionate feeling was quieted by a consideration that was almost unfelt. It was annihilated by turning off, as it were, some tap at its source. I do not say that if I had yielded to the sense of irritation I might not have subsequently felt pains of remorse, but that has nothing to do with what actually occurred. I am sure that I did not consciously discount the contingent remorse, and balance its present proceeds of pain against the present pleasure of indulging in anger.

Habit is another colourless influence that obtains easy victories. We are so drilled by social life that we perform, as a matter of course, multitudes of acts that a solitary being governed by his likes and dislikes would think preposterous. Here is an example of one of these common cases condensed out of my note-book, with changed details as before.

"An imperious old lady, infirm and garrulous, called at my house just as I had finished much weary work and was preparing with glee for a long walk. Hearing that I was at home, she dismissed her carriage for three quarters of an hour, so I was her prisoner for all that time. As she talked with little cessation, I had full opportunity for questioning myself on the feeling that supported me through the infliction. The response always shaped itself in the same way, 'Social duties may not be disregarded; besides, this is a capital occasion for introspection'."

Leaving aside the last clause of the reply, we see here, as before, how a keen desire may wither under the influence of something about which our consciousness is scarcely exercised; some one of the many habits, whose quiet and firm domination gives a steadiness and calm to mature life that children cannot comprehend.

Those who find a difficulty in understanding how a feebly felt mental action can vanquish a strong desire, will find the difficulty vanish if they consent to assume a physiological and not a psychical standpoint. The gain is as great as that of viewing the planetary system after the fashion of Copernicus, instead of that of Ptolemy. There is nothing contrary to experience in supposing that conflicting physiological actions may be perceived with a distinctness quite disproportionate to their real efficacy. We may compare the conflict between faintly perceived activities of one kind and clearly perceived activities of another kind, to that between troops dressed in a uniform scarcely distinguishable from the back-ground with others clad in staring scarlet. We must be content to admit that our consciousness has a very inexact cognisance of the physiological battles in our brain, and that the mystery why apparently weak motives of one class should invariably get the better of apparently strong motives of another class, lies wholly in the word 'apparently'. In short, that the appearances of their relative strength are deceptive.

The remaining difficulty connected with Free-will seems also to depend on the word 'apparently'. It is the startling spontaneity with which some of those ideas that determine the Will seem to arise. These sudden presentations belong to a large category of cases of which hallucinations are the most striking examples. These ordinary accompaniments of insanity occasionally occur also among the sane, and may consist of voices denouncing, exhorting, or conversing in grammatical and well-turned sentences, or else of apparitions undistinguishable from real objects. A similar spontaneity, though in a far less marked degree, characterises all our thoughts. Most of our ideas are partially shaped when they are first consciously perceived, and frequently they are fully shaped. Thus, a versifier, having the jingle and run of a just completed line in his head, may produce a second line at a single birth, that shall rhyme, scan and make sense. I have elsewhere[1] pointed out a close and instructive analogy between the process by which completely shaped ideas probably arise, and that by which "fire-faces," as they are sometimes named, are certainly formed. I mean by that word those well defined faces, landscapes or other pictures, that most persons are apt to trace in the red hot coals of the fire, in the clouds, or in the patterns of wall paper. A part of the mind, unconsciously, and frequently against subsequent judgment and will, is found to have been struck by some chance-lines or sequence of points that serve to suggest a picture. It has ignored everything that does not conform to the unconsciously suggested image and has fancifully supplied whatever is deficient. Sometimes this imaginative process is slow and may be watched in operation, sometimes it halts and we wait for it, but usually it is quicker than thought, and the face, or whatever it may be, starts before our consciousness in its perfected shape, just as an hallucination.

This curious property of the imagination to be set a-going by a trifle and to run on by itself in fanciful directions to extravagant lengths, and to end by forming pictures that are complete even to minute details, must be accepted as a fact, for which it is not difficult dimly to see a rational interpretation. Even a kaleidoscope, which consists of only two small strips of mirrors, is adequate to compose an indefinite number of tasteful and complicated patterns out of glimpses of bits of coloured glass, tossed into haphazard arrangements. Much more may we suppose that the brain, whose structure is enormously complicated and acted on by organic memories as well as by present stimuli, should be capable of doing a vast deal more and something of the same kind as the very simple but suggestive instrument, the kaleidoscope.

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[1] *Inquiries into Human Faculty*, p. 170. Macmillan & Co., 1883.

Leonardo da Vinci and Turner both recognised the need of the imagination for something to work upon, for they, and doubtless very many other painters have done the same, systematically watched chance-groupings of objects to gain pictorial suggestions. This "something" need not be external; it may be due to any casual activity of a part of the brain, set in motion by causes alien to that connected series of physiological actions of which the previous chain of thought was the psychical counterpart. These alien causes may be of innumerable kinds, ranging from what might be described as mere fidget, to the results of grave lesions, the consequence of accident or disease.

In illustration of what I mean, I give the following example of a visual hallucination being traced to its origin. My correspondent wrote to me at length about two classes of mental imagery to which she had been subject for at least 16 years. The one was always present in the dark, when she closed her eyes. It was an assemblage of rapidly moving dots with occasional specks of light. The other occurred at the moment of waking, and was seen behind the still closed lids, though sometimes it persevered like a real object after the eyes had been opened in full daylight. It took the form of some beautiful pattern either of lacework or rich carpetry, full of elaborate details. Then she goes on to say:—"Well, one morning I discovered how these patterns were formed. When I awoke but kept my eyes shut, I saw a confused mass of little dots, shapeless but rapidly moving; suddenly they separated into lines at regular intervals, then followed cross-lines forming diamonds, and in an instant there was the pattern of a carpet, with clusters of roses and leaves at the points, and a smaller rose at the side."

I infer that audible hallucinations and every other form of sudden presentation, every new idea, have an analogous source to these visual ones. Moreover, as the imagination works in obscure depths out of the usual ken of consciousness, there seems reason for supposing that the "something" upon which it works may in most cases be equally beyond its view. It is also certain that those who introspect, and those who study the genesis of dreams, succeed in discovering plain causes for numerous images and thoughts that had seemed to have risen spontaneously.

If these explanations are correct, as I feel assured they are, we must understand the word "spontaneity" in the same sense that a scientific man understands the word "chance". He thereby affirms his ignorance of the precise causes of an event, but he does not in any way deny the possibility of determining them. The general results of my introspective inquiry support the views of those who hold that man is little more than a conscious machine, the larger part of whose actions are predictable. As regards such residuum as there may be, which is not automatic and which a man however wise and well informed could not possibly foresee, I have nothing to say, but I have found that the more carefully I inquired, whether it was into the facts of hereditary similarities of conduct, into the life-histories of very like or of very unlike twins, or now introspectively into the processes of what I should have called my own Free-will, the smaller seems the room left for the possible residuum.

VISUAL HALLUCINATIONS IN HYPNOTISM.

By Alfred Binet.

I offer the following summary of experiments made upon five hysterical girls at the Hospice de la Salpetrière in Paris; having treated the subject at greater length in the *Revue Philosophique* of last May.

Visual hallucinations verbally suggested in the somnambulist stage of hypnotism fall under the following rule:—The imaginary object is perceived under the same conditions as a real one (Ch. Féré).

(1) The hallucination is suppressed by a screen, like the external view of a real object. Some patients, however, continue to experience the hallucination in spite of the screen placed before their eyes; but we may be sure that in these the view of real objects is subject to the same conditions, and also continues in spite of the screen. Further, attentive observation shows that in this case it is upon the screen that the subject projects the hallucinatory image.

(2) The hallucination naturally takes the bilateral form, like external vision. In the absence of special suggestion the subjects perceive the imaginary object with each of the two eyes as if it were a real object.

If the patient has one eye colour-blind, this eye, which cannot see real colours, is equally incapable of seeing imaginary colours; coloured hallucinations cannot be suggested to this eye.

It was the same in a case of spontaneous hallucination observed in an hysterical mad woman. She always saw at her left side a man dressed in scarlet; when this patient's right eye was closed, and her left eye, which was colour-blind, alone remained open, the man in question appeared to her grey and enveloped in clouds.

This rule is, however, by no means absolute. There are hypnotics to whom coloured hallucinations can be suggested through their defective eye. The loss of the sense of colours results from a paralysis of cortical origin, and we can see that the verbal suggestion may overcome this paralysis in certain patients and fail in others.

(3) Mechanical pressure of the eye doubles the hallucination (Brewster's experiment).

(4) A prism placed before the more normal eye doubles the hallucinatory image and makes one of the images undergo a deviation in conformity to the laws of optics (Ch. Féré's experiment). Even when the subject is colour-blind with one eye the two images show the same tint (Parinaud's experiment). I have observed in the hysterical mad woman above-mentioned that the deviating hallucinatory image was surrounded by a band of prismatic colours; the patient declared that she saw two Grippeaus (the name she gives to the individual who appears to her) and that one of them was *surrounded by a rainbow*.

(5) A spy-glass removes or approximates the imaginary object, according as the object-glass or eye-piece of the instrument is placed before the patient's eye. This effect is only produced when the glass has been properly focussed for the sight of the subject, just as if a real object was to be looked at. A myopic and an emmetropic subject cannot make use of the same glass without accommodation to the sight of each. The glass which has not been focussed plays the part of a screen, and consequently suppresses the hallucination for certain patients, and leaves it as it was for others, according as the screen produces one or the other effect upon them.

The experiment of the spy-glass may be varied in a thousand ways by employing instruments in all of which the action depends upon the refraction of light, as the magnifying glass, the prism, a double-refracting crystal, the microscope, &c.

(6) A mirror reflects the hallucination and gives a symmetrical image of it. All that is necessary for this is to get a reflection of the point of space which is the seat of the hallucination. To bring out the symmetrical character of the reflected image, it is a good plan to give the subject the hallucination of a portrait on a sheet of paper; suppose, for instance, that the profile of the imaginary portrait is turned to the left. When the sheet of paper is placed before the mirror, the subject sees the same portrait, but the profile appears to be turned to the right. If for the portrait written lines are substituted, the characters in the mirror appear reversed from right to left or from top to bottom, according to the position in which the paper is placed before the mirror. This last experiment is delicate and requires a certain practice.

(7) The hypnotic hallucination of the somnambulist stage is complete; in the absence of a suggestion to the contrary it engages all the senses.

These experiments in hypnotism serve as an introduction to the study of mental pathology. It is interesting to try to repeat the same experiment on the spontaneous hallucinations of the insane. Unfortunately, it is rare to meet with visual hallucinations so persistent that we can study them directly without being obliged to have recourse, as is too often the case, to the report of the patient. Visual hallucination is only developed in the acute states.

I invite specialists who may have occasion to observe cases of hallucination of sight either in hospital or in private practice to seize the opportunity of repeating these experiments. After having carefully determined the nature of the malady, of which the hallucination is a symptom, the nature of the imaginary object and its position, the doubling by ocular pressure might be tried. If the attempt succeeds, it is more than probable that the other experiments (prism, spy-glass, mirror, &c.), would also succeed, for they are all connected like a series of theorems.

But it does not seem that every hallucination can be doubled by ocular pressure. Negative results should therefore be recorded as carefully as positive results, because equally interesting. More especially, I am inclined to think that unilateral hallucinations and those which move with the movement of the eye do not admit of being doubled, approximated, reflected, &c.

I shall be happy to receive communications on this subject (addressed to 44, Rue St. Placide, Paris).

THE REGENERATION OF LOST PARTS IN ANIMALS.

By D'Arcy W. Thompson, B.A., Trinity College, Cambridge.

The question of the Reproduction of Lost Parts is interesting from several points of view in biology; and many new facts have lately been added to our knowledge of it, which bear closely on the philosophical side of the question. They seem to me to have an important bearing on such speculations as Mr. J. S. Haldane's, who makes use of the phenomena of regeneration of lost parts in his recent article on "Life and Mechanism," in Mind XXXIII., as he has done elsewhere before.[1] And if they do not remove the difficulties that Mr. Haldane brings prominently forward, they at least seem to push them back to another stage.

Before dealing with Mr. Haldane's position, it will be well to review briefly the facts of the case.

In last century, when Trembley showed that the piece of a divided and subdivided Hydra grew again into perfect hydræ, such a proceeding seemed wholly new and extraordinary, and excited the intensest curiosity. It was said to upset all previous notions of the 'individuality' of the organism. Crowned heads grew interested, ambassadors sought for the animal, and state-couriers carried it through Europe.

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[1] *Essays in Philosophical Criticism*, p. 54: "Relation of Philosophy to Science".

Other Cœlenterates, Actiniæ and Medusæ, show the same power of recovery of lost parts, or of being multiplied by artificial section: and the practice of cutting up living Sponges and placing the pieces again in the sea has been recommended as a valuable means of multiplying commercial species.

The power of regeneration in Echinoderms is as strongly marked as in Cœlenterates. The halves of a Starfish torn in two develop new arms, and become completely restored; while even a single amputated arm buds out a body and new arms, and becomes an entire and perfect starfish. If the disc of an Ophiurid be torn across, the halves become similarly regenerated, but the single arm of an ophiurid cannot develop into an entire animal. The diverticulum of the gut, present in the Starfish arm, but not in that of the Ophiurid, seems to be necessary to effect the nutrition of the part during the process of restorative growth. In like manner, a single amputated tentacle of Hydra is not able to reproduce the body of the animal. In Echinoderms we find the capability for regeneration coupled commonly with the habit of voluntary fission. Every collector knows how hard it is to prevent live Brittle-stars from falling to pieces, and a well-known and characteristic passage in Edward Forbes's *British Starfishes* describes the same inconvenient tendency in Linckia. In the last-named and some other genera Kowalevsky, Simroth and others have described fission as a usual mode of reproduction.

In Worms of many different families, like phenomena occur, though here our knowledge is limited to the effects of transverse fission. Nearly 150 years ago, Bonnet instituted experiments on an Oligochæte worm, *Lumbriculus variegatus*, which have been recently repeated and extended by Dr. C. Bülow.[1] Even a few segments of this worm, taken from the middle of the body, and possessing neither mouth nor brain nor sense-organs nor anal aperture, develop into a perfect worm provided with all those organs. And the new worm is just as safely susceptible of division as the old. Bülow has also shown that *Lumbriculus* reproduces by asexual fission under natural conditions. Regeneration-experiments by Bülow on Gephyrea (*Aspidosiphon* and *Phascolosma*) are described in the *Biologisches Centralblatt* for March 1, 1883. In these worms the mouth, tentacles, hooks and circum-œsophageal nerve-ring were found to be quickly restored after amputation.

Zeppelin has carefully described the mode of fission in *Ctenodrilus*.[2] In this worm a constriction appears, which deepens until the animal is cut in two; and it is not till some time afterwards that the head of the one individual or the tail of the other begins to develop. The case is different in several polychætous Annelids, *e.g.*, *Myrianida*, where a median body-segment develops eyes, tentacles, and the other characters of a 'head'; and fission only then takes place, when the two halves are ready to begin independent existence in a comparatively perfect state.

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[1] *Zeitsch. f. wiss. Zool.*, xxxix., pp. 64-96, 1883. *Arch. f. Naturgesch.*, xlix.

[2] *Zool. Anzeiger*, vi., No. 130, 1883.

In Arthropods and Vertebrates the capacity for regeneration becomes restricted to the less important organs, such as limbs or tail.

M. Léon Frédéricq,[1] has lately given us an accurate account of the way in which crabs or lobsters voluntarily relinquish their limbs in self-defence, just as a rat is said to bite off its paw to escape from a trap. And a lizard leaves its tail in our fingers, knowing well that it will soon get another. The perfect regeneration of an amputated limb in newts is another well-known case.

So far the facts of this recapitulation are for the most part well-known and familiar, but our knowledge of them has lately been advanced in two directions. We have acquired important new facts, first as regards the histological processes of regeneration, and secondly as regards the precise characters of some regenerate organs.

The crucial point in the former half of the subject is the resemblance of the processes of regeneration to the original phenomena of embryonic development: in the latter, the important new fact is the occasional indication of reversion to a primitive type in the new-formed organ. Bülow has lately studied the histological structure of the growing tip of the tail in *Lumbriculus variegatus*. The hindmost of a series of transverse sections made through the anal extremity of the worm showed two cell-layers only, the ectoderm and endoderm: sections slightly anterior to these showed the development of a mesoderm, by proliferation from the point of junction of endoderm and ectoderm, exactly as in its embryonic origin.[2] The nerve-ganglia or commissures of the central chain are developed from the ectodermal layer: the gut from endoderm; the muscle-plates, segmental organs, liver-cells and vascular system, from the mesoderm. The ambulatory bristles are formed from ectoderm, but their musculature is mesodermic. The whole process is conspicuously similar to or identical with the development of the embryo, and Bülow even talks of his posterior sections, with their endoderm and ectoderm, as constituting a two-layered 'gastrula'. It is not that the organs already formed are growing bigger or multiplying by subdivision, but, from the origin of the mesoblast to the construction of complex organs, all is going on upon an embryonic plan.

Bülow extends this result to the case of regeneration. In a divided worm, he says, the tail is regenerated from cell-layers developed in the same way and exactly equivalent to the three layers of the embryo.

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[1] *Arch. de Zool. expér.*, (2) i., p. 413, 1883.

[2] *Zeitschr. f. wiss. Zool., loc. cit.*

Fraisse[1] has in like manner shown that, in the regenerating tail of a Urodele Amphibian, the histological processes are exactly comparable to those of embryonic development; though we cannot talk of a 'gastrula' in this case, as the faculty for regeneration does not extend to the cloaca. (Of course, as Fraisse points out, the details of the process of regeneration are in many cases somewhat modified and have their embryonic features marked by altered circumstances.)

Semper[2] had noted, some years before, the affinity between the phenomena of budding in *Nais* and the process of embryonic development; and both he and Bülow have traced an intimate likeness between the processes of budding and regeneration of organs.

These observations have, I think, a philosophical even more than a morphological importance, but to that point I shall return.

Reversionary characters in regenerate organs have been described in the case of certain Crustacea by Fritz Müller.[3] For instance in *Atyoida Protomirum*, a species of Prawn, a mutilated chela is sometimes replaced by one not of the form characteristic of the species, but resembling that found in *Carodina*, an allied genus. The claw in *Carodina* is simpler and apparently more primitive than in *Atyoida*, for the bristles that it bears are short and small, and it is not hollowed out and spoon-shaped as in the latter. In the same crustacean, the fifth pair of feet are peculiar, and are distinguished from the adjacent ones by the want of certain movable bristles, and by the presence of a brush of hair on the last joint. But when amputated, these feet are restored on the normal pattern of the others, though in course of time after a succession of moults they recover their own distinctive characters.

Very similar, if somewhat less striking, results have been obtained by Fraisse,[4] from experiments on lizards. He finds that, especially in *Lacerta muralis* and in Geckos, but also in our common *Lacerta agilis*, the regenerate tail is commonly darker in colour than its predecessor. And transverse sections show that this darker tint is not due merely to the transparency of the young epidermis rendering the dermal pigment more plainly visible, but that the pigment encroaches upon the epidermis, occupying the interstices between its cells, so that the dermal chromatophores are well-nigh hidden. And the epidermis is found also to contain pigment-cells, such as occur in the embryo, but not normally in the adult. In course of time the pigment vanishes from the epidermis, and the lizard regains its proper hue. The so-called 'blue lizard' of Capri, *Lacerta Lilfordi*, has normally a large amount of pigment present in its epidermis, to which it owes its dark colour, and in this species a regenerate tail acquires and retains permanently a darker tint than the rest of the body. Now Fraisse suggests (in direct antagonism to Eimer's view) that this darkening of the regenerate member is a case of reversion, and that the presence of epidermal pigment is an ancestral character. He supposes that the gradual imitative adaptation of colour to habitat was gradually obtained by the advance (or return) of the black chromatophores from the epidermis into the cutis.

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[1] *Biol. Centralblatt*, iii., No. 20, p. 821, Dec. 15, 1883.

[2] "Verwandtschaftsbeziehungen der niedern Thiere," iii. *Arb. aus d. Inst. Zool. Würzburg*, iii.

[3] *Kosmos*, viii., p. 388.

[4] *Biol. Centralblatt, loc. cit.*

We have thus traced in the phenomena of regenerative growth, a tendency to the attainment of the required end by a repetition of embryonic processes; and also a marked tendency to the recapitulation of phylogenetic history.

To return to Mr. Haldane. Proceeding on a philosophical doctrine of the relation of the categories of mechanism and teleology, he argues against the current physiological assumptions regarding the nature of life, which take it to be explicable or at least conceivable as a manifestation of mechanism or an effect of definite physical causes. And he makes use of the phenomena of regeneration of lost parts in contending that we must sublate our view of the nature of life from a mechanical or cause-and-effect category to a category of reciprocity, and from that further to one in which the parts must be regarded as determined in relation to an idea of the whole; in other words that organic processes cannot be reduced to series of causes and effects, or to what is the same thing, matter acting as a vehicle of energy. If a newt's limb be amputated, whether the line of amputation be transverse, oblique, or irregular, and at whatever point it be taken, the cells concerned in the process of regeneration succeed in accurately reproducing the limb. They do not do their work blindly, but, allowing for new and inconstant circumstances, adjust their behaviour to the exigencies of the case. In this phenomenon, Mr. Haldane sees a certain 'purposiveness,' a relation to ultimate function, which cannot be due to the action of mere neuro-muscular or intra-cellular mechanisms. And unless we are to assert the existence within the organism of phenomena altogether different from those outside it, we must acknowledge *a force* connecting generally the organism and its surroundings, to which is subordinated the force governing the motions of the animal.

On this phenomenon of the regeneration of a newt's limb, and on certain apparent evidences of elective volition in the earthworm, Mr. Haldane builds his argument, and he builds it strongly and carefully. But I think that the facts stated in this paper have a very important bearing on philosophical speculations such as his. For we have seen that histologically the renewal of a lost part is but a recurrence to embryonic processes, a re-travelling of a familiar road: and not an independent present effort of the cells to mould themselves in conformity with function—an immediate manifestation of reciprocal interaction between the tissues and their surroundings. And the already described instances of retrogressive tendencies point to the same conclusion.

In all the processes of growth and evolution as well as of repair and regeneration, we are forced to acknowledge that the cell is influenced by something akin to habit or custom, by some tendency to do as its ancestors have done before; and the most complex cell-divisions and most wonderful fabrications of organic mechanism seem but the indication of perpetual bondage to an eternal routine. And many of the phenomena of regeneration, of budding, and of parthenogenetic reproduction seem to indicate that it is but a sort of accident, not the defect of a peculiar attribute, that prevents any single cell of an animal from reproducing the entire organism.

I will give one concrete instance of what I mean by the tendency of growth to persist in accustomed and long previously determined lines.

I believe that the forms of the surfaces of joints are determined by strictly mechanical causes; that if our limb-bones were only roughly blocked out in soft cartilage, their extremities would tend in the course of action to assume the shape that they actually possess; convexities and concavities would be modelled out where we actually find them. But in the fœtus *in utero* the motionless limbs acquire passively their proper conformation; and they do so because a certain stereotyped behaviour has been stamped into their tissues ever since the time when that behaviour was directly influenced by mechanical forces.

Mr. Haldane, however, would probably deny that all this really affects the validity of his speculations; and very likely it only limits their range. For though we bring in with some show of proof the hypothesis of old habit to account for the cells dividing in such a manner as to reproduce the newt's lost limb, yet something further is needed to account for its accurate regeneration when the line of section is oblique or irregular. We cannot but see that the procedure of each cell is regulated and conditioned by the needs of all the rest. Whatever histological or protoplasmic continuity there may be between cell and cell, we may dimly fancy some system of forces interconnecting them, which dynamical system may be again reciprocally influenced by the conditions of the outer world.

"WHAT IS AN EMOTION?"

By Edmund Gurney.

Professor James's recent discussion of this question (Mind XXXIV.) was from any point of view most excellent reading. If it were possible to regard a paper so full of true observation otherwise than as an admirable piece of serious work, it would still be open to one to applaud it as an extremely good joke. Not that I should be inclined to join issue with the writer at the point where he himself presents his doctrine in a humorous light. I am able, or all but able, to swallow the statement that, when I meet a bear, I feel afraid because I tremble, instead of trembling because I feel afraid—that I am angry because I strike a rival, instead of striking him because I am angry; and Prof. James has certainly brought out with characteristic clearness and picturesqueness the very large part which the bodily sensations of the skin, the muscles, and the viscera, may play in what we call emotion. But it is hard to follow his argument that *all* emotion may be resolved into such sensations without a feeling of amused resistance; and if one seeks some immediate justification for this feeling, his own crowning case may surely save one all trouble. There we find a lady, who was suffering from extraordinary loss of sensibility over the whole surface of the body, quoted as a crucial instance of concurrent *emotional insensibility*, because she had lost delight in her ordinary occupations and in her family affections. Yet, reading her own words, we discover that she was all the time a prey to *emotion of the most poignant kind*, and spent her life in agonised rebellion against its strange conditions.

This, however, is beginning at the end. Let us first glance at the emotions to which Prof. James's theory may seem completely, or almost completely, to apply. It is not hard to see what they are; and the ground of their peculiarity is practically supplied by Prof. James himself. *Fear* and *rage* are perhaps the most prominent examples. In such cases, the relation of the organism to some particular feature of the physical environment, which evokes the passion, is exceptionally close and direct; and it is inevitable that the mere sense of the bodily reaction should make up a large portion of all that is felt. The civilised man is here within a measurable distance of the lowlier creatures whose tissues contract at the touch or approach of an alien body; where if we can conceive any true *psychical* reaction to take place, the *sense of contracting* would undoubtedly hold a large place in it. And more refined emotions, which we should not describe in terms of fear or rage, may still present obvious relationships to those cruder and more primitive forms. Our sense of "all-overishness" when our friend approaches the edge of a precipice, is clearly only a step or two removed from the apprehension or the actual representation of a fall; our repulsion to snakes is closely allied to our instinct of anger at the attack of an insidious foe. In the sense of *shame*, again, the physical factor, if less completely explicable, is not less prominent, and clearly stands in specific relation to the feature of the environment on which Prof. James has done well to insist—namely, other human beings and their attitude towards us. Even in *melancholy* of the helpless and moping sort, one may fully admit the sense of the limp and flexed position as a real factor in the emotion; and one may account for this bodily factor in the same way as in the more definite cases of fear and rage,—regarding the posture as the natural bodily response, not now to some single or sudden feature of the environment, but to any hard and overmastering conditions against which it seems vain to contend.

But as soon as we advance to cases where the close and assignable relation to the environment ceases, the difficulties of the theory begin. To take one of Prof. James's own instances—"When worried by any slight trouble, one may find that the focus of one's bodily consciousness is the contraction, often quite inconsiderable, of the eyes and brows". Now Prof. James treats such an item merely as "giving accent" to a large "complex of sensibility," diffused through "our whole cubic capacity". This is, of course, a convenient description for his purpose; but it is surely not too much to say that any feature of the bodily state which one can thus localise and bring into prominence must be the preponderating factor of the state, must characterise it so far as it has any individual character—at any rate in cases where the deviation from the normal state in the way of *diffused* comfort or discomfort is too slight for one to be certain even of its existence. In such a case, if our whole bodily sounding-board is reverberating in any way different from that in which it was reverberating before the worry arose, its modulations have been too much muffled to be properly audible—while in the sense of contraction of the brow we do at least catch the sound of a distinct new note. But if this be so, then this sense of contraction must be that wherein this psychic condition differs emotionally from the previous one—*i.e.*, must be, according to Prof. James, the emotion of the worry; which at that rate ought to be producible by a good rub with an astringent lotion.

But perhaps the clearer limit, beyond which (as it seems to me) Prof. James's theory cannot be pressed, is at the point where *all* local and definable "expression" or "manifestation" vanishes, and where, if a wave of bodily disturbance passes, it is *as such* below the level of definite consciousness. Prof. James of course admits the existence of this point; and below it he has to make up his several emotions from hypothetical permutations and combinations of extremely obscure bodily symptoms, such as slight variations in the circulating and secreting organs, and slight alterations of muscular tension. Now for emotions which are on the same side of the neutral region that divides the pleasant from the unpleasant, and which are not connected with definable peculiarities of the general bodily state, (this remaining at the same level of slight exhilaration or slight depression for a considerable variety of them), it is surely hard to attribute distinct qualitative differences to varieties of combination of factors that remain in the dimmest background of consciousness. In trying to imagine such a result, I seem to be trying to coin gold by shuffling counters in the dark, or to produce red, blue, and green from different combinations of white, light buff, and light grey. I am quite prepared to admit that emotions do truly differ in quality much less than is often supposed, and very much less than their conditions. For aught I know, the "sudden glory" of a good joke may be, emotionally, very like indeed to the sudden glory of appointment to some lucrative office; and I think that this view, of the essential similarity of emotions which would be popularly accounted very different, derives valuable support from Prof. James's demonstrations of the large sensory element in emotion. The view seems specially applicable to cases where there is a marked tendency to bodily expression—such as slapping of the thigh or sudden extension of the limbs or trunk—and where therefore the sense of this expression, similarly evoked by various conditions, really is (as I should willingly concede) an important factor of the whole psychical state. But in quieter cases where the emotions have no distinct common factor of this sort, their identity is far more disputable. I cannot get rid of my conviction that, *e.g.*, the emotion of quiet amusement is qualitatively different from the emotion produced by bright and cheerful music. The former of these emotions, by the way, is one which Prof. James has not noticed. He seems to identify amusement with a tendency to laugh; and he asks what the sense of amusement amounts to when the impulse to laugh is abstracted—representing this abstraction as a purely speculative process, which in no way implies that the laugh, or the impulse to laugh, can be practically absent. I think I catch his meaning; but my experience is that the impulse to laugh *is* practically absent, even in presence of the most amusing things. I have never been more profoundly amused than by Jefferson in the second act of "Rip Van Winkle"; but except at one or two points it never occurred to me to laugh. Nor do I think that I was exceptional: I never saw anything like a display of mirth at that act; yet of a large portion of the audience it would surely be true that a "screaming farce" would have *amused* them less. There are passages in "Happy Thoughts" of which the physical effect on most readers is to make them hot all over; but will any one deny that these passages are *amusing*, and to that extent delightful? But to return to my point—the emotion produced in me by Rip's interview with the goblins is, as far as I can discover, qualitatively different from that produced by the overture to "Zampa"; while the *bodily* reactions—the effects on the skin, muscles, and viscera—so far as they enter into the field of consciousness, must, I am persuaded, be very nearly the same. The chief features in them are probably a faint glow and, as Prof. James has so rightly emphasised, a faint tension of the extensor muscles. And in either case to represent the distinct and keenly-felt emotion (even if I could believe the emotions to be one and not two) as *consisting* in these dimly suffusive feelings, seems to me decidedly less reasonable than for instance to identify the emotion with the sense of some distinct and localised movement, such as tapping time with one's foot.

But the argument for limiting the application of Prof. James's theory becomes surely far stronger still in the case of more durable and pervading emotions; because these will survive unchanged through many distinct variations of bodily state, some of which may be quite incompatible with the special sort of physical response associated with the emotion as its natural or conventional "expression". Prof. James represents *rage* as incompatible with "limp muscles, calm breathing, and a placid face". But surely the emotion of *hatred* may be felt by a man who is resting quietly in an armchair after a hard day's work. Iago did not go about habitually with a flushed face, dilated nostrils, and clenched teeth. But a better example, perhaps, is *grief*. Grant that the emotion of suddenly hearing of a bereavement is in large measure impregnated with bodily elements, such as quickening of the heart and catching of the breath. I am not sure that these are not often the most prominent symptoms of the sudden hearing of good news as well as bad; but let that pass. Would Prof. James deny the name of emotion to the sense of desolation and loss which clouds many a successive day, perhaps for years afterwards, and which is perfectly compatible with the ordinary vital functioning, and even with active bodily exercise?[1] Here the dim reverberations from the whole bodily sounding-board, even if one could suppose them to be permanently going on, must surely be swamped in the general stir of the more normal existence. "What would grief be," asks Prof. James, "without its sobs, its suffocation of the heart, its pang in the breast-bone?" It would be what for the most part it is, an emotion of desire and regret. It must surely be a paradox to say that this brooding mass of emotion, whenever it makes its darkening presence felt, induces the bodily conditions associated with the first shock of sorrow; and equally so to maintain that in such a case the image in the mind is a representation of those bodily conditions, and not of the actual loss sustained. The utmost that I could here concede to Prof. James would be that at the times when the emotion is *most distinctive*—times of solitude, for instance—there may now and again be faint initiations of "expression," which help to characterise the whole psychic state; and that when these particular contributions fail—as when the mourner is engaged in ordinary talk or in some other occupation which precludes them—the emotion to some extent loses colour and becomes a vaguer sort of misery. But if—as is surely indisputable—its *mass*, and its character *quâ painful*, remain unaffected under these latter conditions, it is just as truly *emotion* as before, and emotion to which the physical signs—so far from constituting it—do not now even contribute.

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[1] Cases may surely be imagined where certain features of the physical state are sufficiently marked to put it beyond doubt that the whole condition—*quâ* physical—derives its character from them; *e.g.*, where a healthy man is taking a brisk walk on a bracing day. The preponderating sense of bodily vigour may be the same to-day, when he is walking to a death-bed, as yesterday, when he was walking to an agreeable party; but will the two walks impress him as emotionally identical? A still clearer example would perhaps be where the physical condition in the two cases is one of *discomfort*—as where the man is obliged to *run* rather faster and more continuously than is convenient. Happiness will triumph over even a stitch in the side.

But the difficulties naturally culminate when we pass on to "the moral, intellectual, and æsthetic feelings". Against the view that "concords of sounds, of colours, of lines, logical consistencies, teleological fitnesses, affect us with a pleasure that seems ingrained in the very form of the representation itself," Prof. James maintains that "unless there actually be coupled with the intellectual feeling a bodily reverberation of some kind, —unless we actually laugh at the neatness of the mechanical device, thrill at the justice of the act, or tingle at the perfection of the musical form—our mental condition is more allied to a judgment of *right* than to anything else". He proceeds to draw a clear distinction between cognition and emotion, and illustrates it in a striking way by the coldly critical view of a connoisseur, and the naïve thrills of a layman, in presence of a work of art. Even here I should be glad to know if he really thinks that Titian or Mr. Ruskin have derived less *emotion* from the "Assumption" than the honest English couple whose attitude he so amusingly describes. But one may surely recognise the difference between the judgment of rightness and the emotion of æsthetic pleasure (whether true or false, healthy or morbid), without having to concede that the latter is a mere wave of diffused sensory disturbance. There can be no better illustration of the issue before us than is afforded by one of Prof. James's own examples—that of music. His view goes far to confound the two things which, in my opinion, it is the prime necessity of musical psychology to distinguish—the effect, chiefly sensuous, of mere streams or masses of finely-coloured sound, and the distinctive musical emotion to which the *form* of a sequence of sound, its melodic and harmonic individuality, even realised in complete silence, is the vital and essential object. It is with the former of these two very different things that the physical reactions—the stirring of the hair, the tingling and the shiver—

are far most markedly connected. Such effects no doubt often accompany the genuinely musical hearing of music—the mode of hearing which instinctively takes account of the form; but rarely, I think *in dissociation* from mass and colour of a satisfactory sort. If I may speak of myself, there is plenty of music from which I have received as much emotion in silent representation as when presented by the finest orchestra; but it is with the latter condition that I almost exclusively associate the cutaneous tingling and hair-stirring. But to call my enjoyment of the *form*, of the *note-after-noteness*, of a favourite melody a mere critical "judgment of right," would really be to deny me the power of expressing a fact of simple and intimate experience in English. It is quintessentially emotion—whether due to mere "cerebral forms of pleasure and displeasure," or connected with remote associational sources, I need not here discuss. Now there are hundreds of other bits of music, similar to these in all external ways—in all points that are verbally definable—which I judge to be *right* without receiving an iota of the emotion. For purposes of emotion, they are to me like geometrical demonstrations, or like acts of integrity performed in Peru. I think that Prof. James is bound to accept my experience as I have stated it; but then he will have to answer me this. If the cerebral centre or centres which are primarily affected merely give the sense of *rightness*, and the secondary reverberation from the muscles, skin, and viscera superadds the *emotion*, why does one rightness evoke the reverberation, and not the other? *I* only know that the two bits of musical movement differ qualitatively by the presence to one, and the absence from the other, of an emotional power: why should my brain-centres know better than I, and send down a summons to my body to reverberate when Beethoven is "right," and not when Clementi is "right"? So when Prof. James says that "in every art there is the keen perception of certain relations being *right* or not, and there is the emotional flush and thrill consequent thereupon; and these are two things, not one," I reply that though logically they may be two, experientially they are often one. To the example which I have chosen the doctrine would indeed hardly apply even logically. For the emotion which the musical layman receives is not "consequent" upon the perception of any relations which can be marked out and justified as right apart from emotion; that sort of rightness is *caviare* to him. But the veriest layman may maintain that, in writing a movement of a sonata, it is more *right* to produce a musical organism than a musical corpse; and when the two movements are produced, *emotion* is the only test for deciding which of them is alive and which dead.

But I am outrunning my space. I will only suggest, in conclusion, that if the above argument is valid in the case of anything with so large an element of sense in it as music, it must surely apply *a fortiori* to moral and intellectual fitnesses.

V.—CRITICAL NOTICES.

Outlines of Psychology, with special reference to the Theory of Education. By JAMES SULLY, M.A. London: Longmans, Green, 1884. Pp. xxiv., 711.

Mr. Sully's contributions to Psychology have already secured for him so distinct a place as one of the most able and successful students of the science that a reviewer of his latest work is absolved from the pleasant task of merely general eulogy. It needs not to be said in many words that in the *Outlines of Psychology* ample evidence is afforded of the writer's power of acute analysis and felicitous statement, and that the reader will find in it not only a valuable compendium of much new work but also rich material for further reflection. Nor does it seem needful to offer any opinion as to the comparative merit of the book viewed in relation to such similarly planned treatises as may formerly have been accessible to the English student. It goes without saying that Mr. Sully's book, coming as it does at a time when psychology is occupying an unusual amount of attention and the material of the science is constantly on the increase, must take a position distinctly in advance of its predecessors in the same line. It embodies researches of a novel description, and it brings before the student views and lines of inquiry the importance and significance of which have been but recently recognised.

At the same time the circumstances which give to Mr. Sully's volume its fortunate position, as representing in compendious form an immense amount of new work in psychology, have other consequences and impose weighty obligations on the writer of a systematic treatise. It is an old theorem that form and matter go together, and certainly, in respect to any science, it is rarely possible for its material to increase largely in quantity without a change taking place in the fundamental notion, principle or method which animates the whole and gives it a special place in the wide domain of knowledge. The period which has been so rich in detailed psychological work has been one of continued discussion in regard to the exact nature, the conditions, even the possibility of a science of psychology. The many treatises on psychology which represent that work offer to the student a very chaos of conflicting views in respect to all the fundamental problems of principle and method, and a teacher of psychology finds that his hardest, though perhaps not his least profitable, task is to give such an initial statement of the nature of his facts as shall be consistent and capable of development. That there are special grounds of difficulty in taking the first steps in psychology is a well-recognised and much-deplored truth, and one might add that it is likewise peculiar to psychology that the liminal difficulties cannot be evaded without the most disastrous consequences to the body of the exposition. In the objective sciences, that is, in those portions of knowledge in which the material is, so to speak, one-sided, in which no fact is contemplated save under the form of something capable of being presented as object to a cognitive mind, it is possible to separate the strictly scientific difficulties from so-called metaphysical problems by mere reference to the marked difference of treatment. But it is one of the problems which the psychologist has to handle *in limine*—whether his facts can be viewed as objects merely, and if he be wise he will not allow himself to be misled by any shibboleths of the tribe of science. Terms like 'orderliness,' 'uniformity,' 'law,' have but a formal significance, and must not be supposed to carry with them any decision of the real difficulty as to the nature of the phenomena within which order, uniformity, and law are to be manifested.

Psychologists of a former generation used often to include in their treatment a chapter on the difficulties which originated in the terminology of their science. They rarely exhausted these difficulties, and perhaps there would be no more useful section in a modern scientific treatise on the subject than that which should submit to the most careful treatment the sources of ambiguity in the terms inevitably employed in the investigation. Language, though rich, is far from rich enough to furnish equivalents for all the shades of significance that may call for expression, and, in tracing the development of so enormously complex a fact as the individual mind, the psychologist has constantly to be on his guard against the erroneous identifications of different phenomena that are likely to arise from the employment of identical terms. Words always imply the stage of intelligence in which quite definite recognition of object and objective connexion has been acquired, and cause us therefore serious perplexity when we are called upon to express either a simple phase of thought, or a merely abstracted portion, or the complex fact of recognising an object.

It only remains to be added, that the vast extent of the material which the psychologist has to handle makes systematic treatment unusually hard, and perhaps it would not be unfair to say that, whether or not a science of mind be possible, it does not yet exist as a fact. In face of the phenomena of mind, psychology is at present much in the position in which mechanics was to the complicated forms of material change prior to the disclosure of the simplest laws of moving bodies. We are probably only on the way towards arrangement of our facts into relatively simple and complex, and are yet far from the stage at which systematic development of the whole is practicable. It is in view of the general problems arising from the exceeding complexity of the psychological data, the great difficulty of defining their nature, and the close relation of the inquiry to other lines of philosophical investigation, that one must examine any new presentation of the science; but before asking how far Mr. Sully's volume advances our insight, a word may be permitted on certain minor ends which the work may serve and probably is intended to serve. It is a text-book, that is, it offers a general introduction to the vast subject, an introduction suited to a first study; and further, it includes special reference to the theory of Education. In both respects, while the book gives much that is valuable, much that cannot be got elsewhere and that is nevertheless indispensable, it appears to leave something to be desired. For the student who is beginning psychological work it is at once too long and too short—too long, because it has endeavoured to include almost every special line of investigation, too short, because it has been found necessary to refrain from the complete, exhaustive treatment of even cardinal difficulties. In my opinion, it is far more important that the student should be brought by careful and many-sided treatment of the more prominent phases of mental life to realise the general nature of the subject, than that he should be introduced to the special researches that have grown up in connexion with each point in the complex history of mind. Such special researches have their value only when carried out on a well-secured basis, and they are even apt to mislead when taken up too soon. The considerations involved in them can only be appreciated by a fuller handling than is appropriate to a text-book, and brief reference is likely to convey a false impression of their exact nature. I do not say that what Mr. Sully gives us, in regard, *e.g.*, to the mechanism of sensation and to movement, is not in itself of high value, but merely that it does not seem material of a kind to be profitable to the student. On another feature of the book in which it bears on the wants of the student, the unity of conception or method implied in it, I shall presently comment; and I would add the expression of a wish, which will probably be shared by other readers, that Mr. Sully had found it possible to extend largely his bibliographical references.

I am in entire agreement with Mr. Sully in his remarks on the connexion between Psychology and theory of Education; and certainly, were one to draft a course of instruction for the training of teachers, Psychology should occupy an important place therein. I would add that, in my judgment, the study of the problems peculiar to the theory of education is of the highest value for the psychologist. These problems compel him to dwell on the gradual development of the mental life, and bring before him in a very suggestive way the variations in the nature of each phase of that life due to its development. But if a writer proposes to go beyond the general bearing of psychology on educational work, which is involved in the very conception of a regular order of mental development, he must, I think, take in more than Mr. Sully has found compatible with the limits of his treatise. He must be prepared to compare in detail the general rules of educational practice and the materials of education with his psychological doctrines. Only so can he attain the desired end of correcting and illuminating educational method. The short sections appended to the several chapters, in which Mr. Sully makes specific the reference to education, are too brief to represent all that is implied in his psychological analysis, and suffer moreover from being so broken up. Mr. Sully, however, may be encouraged to do what he is eminently fitted for, to deal systematically with educational theory, and we should gladly hail such a treatment.

Turning now to the work as representing a complete statement, in elementary fashion, of the facts of mental life, one is naturally attracted by the general arrangement of its parts, a feature by no means so external as it might seem. A brief introductory chapter on the Scope and Method of Psychology, a chapter supplemented to some extent by three Appendices, is followed by three chapters, on Mental Operations and their Conditions, on Mental Development, and on Attention, which form in conjunction the real introduction, the general treatment of mind as a whole. Then, following to some extent the traditional rubrics, come six chapters (v.-x. inclusive), on Intellect, passing in review, successively, Sensation, Perception, Reproductive Imagination (Memory), Constructive Imagination, Conception, Judgment and Reasoning. Two chapters are devoted to the Feelings, simple and complex, and two to Mind as active or striving, Will and Voluntary Movement, Complex Action and Conduct. It does not seem unfair to say that the arrangement adopted is largely a compromise between the view which, starting with the unity of mind and the intimate connexion of its fundamental features, endeavours to follow genetically its development into specially marked phases, and the view of the older empirical psychology, which fastened upon the specific differences of the developed phases and endeavoured to lay down for each certain generalisations or laws. To recognise the first view at all is something gained; to give a thorough statement of its implications, to carry it out systematically and to bring it to bear upon the empirical generalisations of the older psychology, is a task which we think Mr. Sully is continually approaching in his treatment, but which he has not successfully carried out. The most valuable sections of his work are those in which he approaches the task most closely, the chapters, *e.g.*, on Mental Development and on Attention, and portions of the chapters on the Emotions and on Will; the least satisfying are those in which he keeps more closely to the older forms of expression, the chapters on Perception and Imagination, and particularly those on Thought (Conception, Judgment and Reasoning). The difference between the views, a difference very imperfectly indicated by a brief statement, is so radical that such a constant struggle between them as I seem to perceive in Mr. Sully's exposition, is almost certain to weaken the effect of the whole presentation, and to make it to some extent a failure. Highly as I rate the value of Mr. Sully's volume, and much as I admire not only the completeness of knowledge which enables him to muster so many isolated facts but also the acuteness with which he treats a multiplicity of single problems, it does not seem to me that he succeeds in giving one complete, consistent view of the whole phenomena of mind.

The apparent conflict of views to which I have referred undoubtedly connects itself with and depends on the omission from Mr. Sully's volume of any full discussion of the point of view from which the facts of mind are to be treated, *i.e.*, of psychological method. One can understand the reasons which might weigh with a writer to induce him to omit the discussion, especially in the case of a text-book; for certainly the problem that has to be attacked is of unusual subtlety and complexity. But unfortunately the peculiar nature of psychology renders it quite impossible to dispense with the laborious work of definition and explanation, and an exposition where one can only gather imperfectly and from isolated parts the general idea of the whole on which the writer proceeds, must find itself embarrassed at various points and have always a certain misleading tendency. Mr. Sully fully recognises that psychology has something peculiar, and invariably couples his description of it as a natural science with some qualifying remark; wherever he has to deal with the advance in complexity of the mental life, his handling implies a more profound conception of the nature of the facts than is formally enunciated; but he leaves the explicit statement unsaid, and the evil consequences seem to me to be apparent in more than one special disquisition in his volume.

For one would not demand a special treatment of the scope and method of psychology were the only result to be the more accurate classification of psychology in relation to natural science and philosophy, though even with that much would be gained. The pressing need is for a clear and unambiguous explanation of what the thinker takes to be the characteristic, peculiar features of the facts he proposes to systematise, an explanation which is but the explicit statement of the kind of consideration that he will apply to the several concrete phenomena as they successively present themselves in the course of his exposition. The difficulties in the way of defining one's point of view are so great; it is so easy to adopt a mode of speech that is radically unsound; it is so imperative that the one method should be consistently carried out,—that the formal discussion of method seems to be imposed as an indispensable obligation on every expounder of psychological science. When one compares the various treatises that represent the cultivation of psychology since the Kantian era, one is struck by the enormous differences in detail that spring from fundamental differences of methodical view, and impressed with the conviction that an immense amount of labour must yet be expended in merely clearing the way for a sound view.

Mr. Sully emphasises the position that Psychology is a science, and that the psychologist must proceed after the recognised scientific method to classify his facts, to refer them to their conditions, and to reduce the complex mass to general laws or order. With all this one can have no quarrel, for nothing is implied as to the nature of the facts, and no one would question that if the facts are to be known, are to be reduced into the systematic form of a known body of truths, the processes to be applied are those of knowledge. The difficulties arise with the next step, when a statement, however brief, is offered as to the nature of the facts. Here Mr. Sully leaves us in some obscurity. He uses the characteristic of *inner* experience as marking off the facts of mind from those of nature, and he lays stress upon Introspection as the mode by which inner experience is brought before the thinking mind. Now it does not seem to me that the distinction of inner and outer experience will carry us very far, and it is certain that the distinction is far from being so clear as might at first glance appear. Outer experience, Mr. Sully is well aware, is just as much a problem for the psychologist as that which is contrasted with it. And if we turn the opposition into the more objective phrase, outer and inner facts, we are left without any data by which to determine the precise nature of the latter. The contrast between inner and outer facts as the psychologist treats it is a highly complicated and involved act of mind, and we can hardly afford to start with it as our most elementary distinction. Nor will the negative mark, non-occupancy of space, avail much. It may be possible in the course of psychological analysis to explain how it comes about that the individual distinguishes his own mental life from the larger world and characterises it as opposed radically to the extended, space-occupying things known to him; but if we are to start with this feature, we must express it in such terms as shall show its true place in the history of the individual's mind. The term Introspection, finally, has this of danger in it, that it inevitably leads one to regard the facts of mind as presenting exactly the same formal aspect, aspect as known fact, to the introspective observer that external facts offer to him when percipient. They are taken to be isolated, separable objects, *inner* in nature, but connected in ways identical with the observable connexions of natural facts. One might even question whether the term Introspection should be allowed to hold the place it does in psychological treatises. It will hardly be maintained that it is by a special act the individual comes to know that he has a mental life, a life which he distinguishes from so-called external things; and if it be said, that nevertheless it is by introspection he obtains a scientific knowledge of this life, one must point out that the term indicates then no new unique process, but simply concentration of attention on that which is given in memory. It certainly becomes possible for the individual to reflect definitely on his own mental existence as contrasted with the stream of events taken to be objective, and we can trace the steps by which the power is gained; but there needs no new term to indicate the fact.

The few indications given by Mr. Sully of the main conception on which he proceeds do not allow him, I think, to attain any very clear discrimination of the province of psychology from other branches of philosophy. In fact, were one to press to their conclusion the expressions regarding inner experience and psychology as a science, they would warrant one in saying that psychology had no relation at all to philosophy, and that it stood on its own basis as a treatment, in scientific fashion, of a body of specially characterised facts. Such a conclusion would be unfortunate, though one should deprecate the inclusion in psychology of certain problems not uncommonly dragged in, and should maintain that a distinction can be indicated sufficient at once to give a clear ground for psychological analysis and to connect it with general philosophy.

It appears to me that if we proceed towards a determination of the exact nature of psychological material and start, as we must do, with broad currently accepted distinctions, we arrive inevitably at the conception of the individual conscious subject as that which gives unity to all the phenomena of the so-called inner life. We cannot express a fact of mind otherwise than through terms which imply the peculiar reference to the individual subject and the distinction between the state of the individual and that which is, as we should put it, the content of the fact. Our analysis of the conditions under which the sense of individual mental existence comes about may force upon us the conclusion, that in the complex mechanism through which it is realised there are the possibilities of affections which we could hardly describe in similarly precise terms, but we interpret these only through the analogy of the mental existence in which the individual is aware of himself and has opposed to him a relatively objective system. By objective, I may note, there is not implied *extra-organic;* the dualism which starts with mind and things seems to me not only wholly misleading but wholly needless for psychological analysis. A thing, in the sense of an extra-organic object, is an extremely complex determination of the individual's thought, and we can trace genetically how the characteristic features come to be added on to the perfectly general opposition of individual consciously existing and that which is *object* for him.

When we work backwards and endeavour to indicate the full nature of this ultimate fact, we are brought, I think, to see that the current separation of Knowing, Feeling and Acting does injustice to the unity of mind. Briefly, one would say there can be no sense of individuality, no consciousness of self as a mental existence, save through the intimate union of knowing, feeling and acting. Knowing, when we view it *in abstracto*, implies solely, as its formal and general characteristic, the dual opposition between knower and known, an opposition not of two entities or facts, but an opposition which is contained in and makes the essence of the act of knowing. But so far there is given nothing beyond mere generality, and we might analyse knowledge to any extent without discovering in it aught that would serve as adequate foundation for the conception of the individual self. Only in activity is there individualising force, and only through feeling which accompanies every change of mental being is there effected a junction between the striving or impulse that is the secret of individual life and knowing which makes that life conscious and intelligent. The threefold cord of conscious life we may subject to isolated treatment, and in the course of its development the relative proportions of its factors exhibit the most wonderful varieties, but its unity is the indispensable fact with which in tracing the history of the human mind we have to start. Such a conception allows us not only to render quite precise the relation of psychological analysis to other branches of philosophy, but serves to determine the course of psychological exposition and to illuminate its separate problems. It is through and in the conscious life of the individual that all the thinking and acting which may form the material for other treatment is realised, and with the content of that thought or action the psychologist, as such, has not to deal. Where we isolate the content and treat it as having a quasi existence *per se*, we are in the attitude of objective or natural science. Where we endeavour to interpret the significance of the whole, to determine the meaning of the connective links which bind it together, we are in the attitude of philosophy. But when we regard the modes through which knowing and acting are realised in the life of the individual subject we are in the position of the psychological inquirer. It is the sole and the whole business of the psychologist to trace the history of the conscious life of the individual subject, and it is in the notion of the individual subject that he will find the limits of his treatment. In parts of his work, as before said, Mr. Sully does approach this view, but he does not always remain true to its guidance.

Were we to adopt as our principle in psychological exposition this notion of the individual conscious subject, we should find that the course of exposition was determined for us. The conditions under which the mental life of the individual is possible would form the matter for the first general division of the treatment, and we should be able to carry with us from this general treatment propositions that would find their special application in the analysis of more complex phases. The three chapters of Mr. Sully's book, already signalised (chs. ii.-iv.), seem to me to correspond in part to this general treatment, but he has not succeeded in conveying so clearly as could be desired a representation of the elementary constituents of mind, and he does not consistently apply even what is given. I shall take one or two special matters to illustrate what I imagine would follow were the more complete conception carried out.

Mr. Sully rightly gives to Attention a place as a general fact, and under that head treats fully and instructively of the conditions under which the "self-direction of the mind" is brought about. But he seems to be uncertain as to what attention is in itself and gives only metaphors in explanation. Now closer inspection of the numerous facts he adduces might have led him to the just conclusion that attention is not in one sense an additional fact, something over and above the content of mental life to which, as one popularly expresses it, attention is given, and also that the precise significance of attention, the component parts, will vary according to the stage of mental development. If we bear in mind that the individual self-consciousness contains always the three factors, knowing, feeling and striving, that it is constantly altering, that at each stage there becomes more definite the notion of self, and that at each moment the empirical self may present special features, there is no difficulty in regarding attention as the term to indicate the definite, momentary connexion of any given content of the mental life with the sense of individual being. The difference between attention and consciousness would then simply be, that in the former the given fact has such concomitants as connect it for the moment in a special way with the prevailing contents ('the ruling cluster of ideas,' as Volkmann puts it in the passage quoted by Mr. Sully) of the individual's self-consciousness. It is by a slow process that there grows up so definite and habitual a 'cluster of ideas' (constituting self in opposition to other things) that voluntary concentration becomes possible. Indeed the distinction between the so-called involuntary and voluntary modes of attention is to be regarded as one of degree only.

There is one general consequence of the view taken which is so important in its bearing on isolated problems that it may here be briefly stated. Nothing that we can call a state of mind is ever simple. We may therefore dismiss as frivolous the inquiry whether the mind can be in more than one state at a time, and look with distrust upon all the modes of speech which imply that the mental life consists of a series or train of states. We shall even qualify the old rule of attention which Mr. Sully quotes with approval, *Pluribus intentus, minor est ad singula sensus*, and say that it is utterly false when taken without due explanation, and extremely valueless with it. And when we proceed to the analysis of highly-developed phases of mental life we must be on our guard not to neglect such useful hints as the general view supplies to us. In examining, *e.g.*, the important portion of knowledge that is commonly called sense-perception, and taking for isolated treatment the conditions under which affection of the bodily mechanism results in sense-perceptions, we must not allow the phraseology we employ to induce us to accept sensations, or sensuous atoms, or shocks, or whatever they may be called, as facts of the mental life. Mr. Sully's treatment of sensations, full and painstaking as it is in reference to the special researches that have yielded so much knowledge of the mechanism of sense, lacks the clear determination of these as mere elements, factors of the unique state of knowing, and is, moreover, perplexed by the want of a general statement correlating the several parts. His view of perception is difficult to grasp, and it would have added to the value of his exposition had he quite marked off the problem of localisation from the discussion of the other characteristics which he assigns to perception. It might be well did psychologists agree to employ the term *Intuitions* to indicate that aspect of the percept in which it is regarded merely as sensuous content *plus* the additional feature of space-determination. But both in regard to localisation and in regard to the additional characteristics of the percept, Mr. Sully's account would have been improved by following more deliberately the genetic method, and including a fuller treatment of that which seems to me the key to the whole process, our determination of the body. The predicates by which we assign specific meaning to the so-called external thing are entirely relative to the body, and what we call the *reality* of a perceived thing has no significance save when viewed in relation to the reality of the body. Our apprehension of an external thing is an excessively complex fact, but we can trace with considerable success the mode in which out of the primitive opposition of self and object there gradually grows up on the one hand the more definite conception of the empirical self, and correlatively, on the other hand, the determination by ever new features of that which is not self.

The propositions that there is no reality save as the counter term of the real activity of self, and that the reality of the external thing perceived is a more complex determination relative to the recognised reality of the body, throw light on many perplexing points of special psychology. Thus, *e.g.*, Mr. Sully seems to me uncertain with respect to the nature of Belief, and to be inclined to regard it as a unique fact, influenced by and influencing Knowledge, Feeling and Will, but distinct from them. At the same time, he thinks that knowledge is on its subjective side believing, that is to say, would substitute belief for knowledge as the main fact of mind. No doubt the conditions of belief are numerous, and, as with all other facts of mind, differences will appear according to the complexity of the stage of mental life at which belief is being viewed. But the connexion between belief and the notion of reality points the way towards an explanation of its nature and its relations to the other facts of mind. Reality has more meanings than one, and what is called external reality is but one species. All of them signify, however, the opposition of self in its momentary phase, of self recognised as real, and of the correlative term, whatsoever that may be—a term the nature of which is the content of the individual's knowledge at the moment. Now, the recognition of the reality of self is not a simple fact, either of knowing, or of feeling or of acting, but a compound of all three. Belief is only the special name for the sense of reality which accompanies each recognition of self as in opposition to some determined object. So long as the difference between the mental life and its surroundings is obscure or imperfect, so long does 'primitive credulity' lead the individual to take as real whatsoever enters into his conscious experience. So soon as memory enables him to distinguish between the momentary phase of his experience and its continuous existence, so soon is there possible a distinction between that which is believed in as real and that which is determined as ideal. The numerous features by which external reality becomes for us a fact of experience, give additional complexity to belief and allow us to draw the familiar distinctions between perception and imagination which we are accustomed to take as exhausting the opposition of real and ideal. I do not say that perceiving and imagining have the same content so far as knowledge is concerned, and that the one is accompanied by belief which is wanting to the other, for every characteristic of the total state affects the content, but only that in the one the elements for determining reality are given and that in the other they are absent. The elements themselves vary much in the course of development, but, so far as external reality is concerned, always relate definitely to the body. It is because the feelings and the will enter so potently into the determination of the body as a known fact, that belief may be so readily described as a kind of feeling or even as an active state.

To Mr. Sully's treatment of Imagination the main objection I should have is his tendency to look upon the ideas as separate images, entities of some peculiar kind, and to disregard the important consideration that they are always ideas *of* something, that is to say that here we have repeated the complex fact of a mental state in which is given the opposition between the subject and the content represented. Language is hard, and it is difficult to avoid saying that the mind has ideas, as though ideas were things which the mind contemplated, and yet the expression is most misleading. The mind, one would rather say, is its ideas. It is only through memory and reflection that we come to distinguish our mental life as a unity and to contrast with it the separate phases as something belonging to it. But on this and on many other topics suggested by the chapters on Imagination, I cannot now remark.

It is with some satisfaction that one sees the small space allotted by Mr. Sully to the account of the Laws of Association. As commonly formulated these laws are most delusive, and the attempt to apply them in their crude form has only resulted in failure. We have in them empirical generalisations founded on observation of highly complex phenomena of mind which, as so stated, are wholly inapplicable to the problems that psychology has attempted to solve by their means. Recent writers, especially Wundt, but in part also Steinthal, have approached the subject in a more comprehensive way and distinguished between the elementary modes of connexion in the mental life and the conditions under which in matured experience suggestions come about. What we require specially to keep in view in approaching the problem is that the mental life does not form for us a string of separate parts (a consideration, by the way, which should lead to a considerable revision of the ordinary explanations of Memory), and that phrases such as 'calling up an idea' are mere metaphors. Each separate fact of conscious experience stands out momentarily from the vast complex of the individual mind and, as one says, receives so much attention, but it is always accompanied by this complex, and the question what determines the train of thought, what causes us, as we say, to think of something else, is really the question what causes attention to include this or that at the moment. The motives are infinitely numerous, and vary indefinitely in character in successive stages of individual development; for the most part, indeed, they are distinctly what would be described as logical; but the essential fact is the movement of attention as expressed in the view taken of the part more immediately under consideration. It would require more detail than can here be given to show how the currently accepted Laws are taken in under this more comprehensive view.

The last point to which I can call attention is the treatment of the various forms of Thought, contained in chs. ix. and x. Here in particular I seem to notice the effects of the view which regards the complex and unique fact of knowing as though it were but an object, one among others, with the same singleness of nature that is peculiar to the content of external perception. Mr. Sully takes the class-notion or concept as though it were a fact to be observed, differing from the idea of the particular in being relatively poorer in marks, and resembling for the most part the generic image. Not only would one doubt the whole supposed process of beginning with particulars and passing to the general, not only would one hesitate much in describing the class-notion as the special type of conception, but one must entirely reject the reading of the general notion which is satisfied with regarding it as a kind of fainter image or faded picture. Fainter image or faded picture may, in truth, exist as parts of the complete act of conceiving,—parts which ought not, however, to be viewed as having a quasi-objective existence,—but the act of conceiving is itself, as the very name and common logical terminology force upon us, a complex operation, in which distinct and emphatic recognition is present of objects as opposed to the thinking subject, and in which the attention is turned upon the relations of content which these objects exhibit. A general notion is the knowledge of something, and cannot even be described in such a way as to avoid the ultimate dual reference. It is no matter of surprise, but a simple consequence of the way in which our conscious life develops, that the amount of concrete imagery implied in the act of conceiving should be infinitely varied, and that signs or symbols, which are possible only for a thinking intelligence, should be capable of taking the place of specific representations. On the whole, however, the chapters on thought and its processes are those in which Mr. Sully's keen faculty seems to have been least exercised, and perhaps the problems included therein have less interest for him than for others.

It would unduly extend this notice were all the subjects suggested by the latter portion of the book to be noted, however briefly. The psychology of the Feelings and of the Will is in a very inchoate state, and I can only say that I think Mr. Sully's contribution here of very high value. I do not make very clear to myself his account of the Will, and I should gladly have seen a more thorough discussion of the various phases through which our impulsive or striving nature passes in its development. I wish, too, that Mr. Sully had not said even the word that is here said on that famous bugbear, Free-will.

I cannot conclude without the general remark that though difference of principles makes me dissatisfied with Mr. Sully's exposition as a whole, I am not insensible to the high merits of his work. Many portions, particularly where the analysis of some rather concrete phenomenon is under inspection, seem to me of the highest order.

ROBERT ADAMSON.

Leibniz. By JOHN THEODORE MERZ. ("Philosophical Classics for English Readers,") Edinburgh and London: Blackwood, 1884. Pp. viii., 216.

This volume is to be welcomed not only because it has distinctive merits which might give it a claim to a place of its own even amongst the voluminous foreign literature on Leibniz, but specially as the first attempt made in England to offer a comprehensive estimate of the life-work of the founder of German philosophy. It is not difficult to trace the causes which have led to the neglect of Leibniz in this country. His philosophy was too far apart in character from the prevailing modes of English thought to render its assimilation by the latter anything but difficult, even had there been no Newton-controversy to excite a prejudice against its author. In Germany his philosophy was certainly not neglected, yet the history of its influence bears traces of the irony of fate. Unsystematised by its founder and modified by him from time to time as new facts and new points of view became apparent to him, it was reduced to rigid and abstract form by an unsympathetic follower, and it was this systematisation of it that influenced Kant and thus determined the manner in which Leibniz was to affect the development of speculation. Built on the ruins of Scholasticism, it gave rise to an equally dogmatic system in which the appeal to reason was worked as uncritically as it had formerly been the custom to use the doctrines of the Church. Leibniz himself was an early convert to the new way of interpreting nature; but, in the hands of his follower, his system seemed to offer the means of constructing science *à priori*. It is a remarkable fact that, while the subsequent progress of mathematics was due to the new method and symbolism of Leibniz, his original ideas in logic and psychology bore no fruit whatever, and scarcely attracted attention till they had been arrived at afresh by independent investigators. Wolff's device of reducing the principle of Sufficient Reason to that of Contradiction no doubt seemed to him to supply the link that was wanting in Leibniz's system to render its logical concatenation complete; but its only effect was to give knowledge the false appearance of *à priori* deduction, and thus to lay stress on the weakest part of Leibniz's philosophy.

It is hardly necessary to say that Mr. Merz's volume is the result of a sympathetic study of Leibniz in his own works, and not in the form in which, as systematised by Wolff, his thought became a factor in the historical development of German philosophy. The author will not even attempt to weave Leibniz's doctrines into a consistent system. This has been done by historians of philosophy, but, he says, "without sufficiently considering whether—if such a task had been undertaken by Leibniz himself—he would not have found himself compelled to modify or amplify many of the views to which he clung tenaciously in his correspondence and casual writings" (p. 135). This remark is perhaps not uncalled for. More than any other systematic philosopher, Leibniz kept his mind open to receive new views, and was always ready to assimilate the element of truth which he found in an opposed theory. But yet the central position of his own philosophy had been reached by him many years before his chief writings were produced. However unsystematic a writer, he was too systematic a thinker, and his philosophy was too intimately associated with life, for him to continue throwing out half-truths which had not been brought into connexion with his fundamental principles.

There does not seem therefore to be any sufficient reason for denying that the various fragmentary expositions of Leibniz's thought were the result of a consistent *Weltanschauung* and that they are capable of systematic expression. But there is no doubt that Mr. Merz has done wisely in preferring in the present work to elucidate the principles of Leibniz's thought rather than to attempt the systematisation which Leibniz himself did not give. Even if the "English Reader," for whom the volume is expressly intended, has less familiarity with Guhrauer's biography and with "the well-known historical treatises of Ueberweg, Kuno Fischer, Erdmann, and Zeller" than the author seems to credit him with, he has much to learn—and will be able to learn much—from this volume as to the harmony of Leibniz's life and writings, and the principles of which all his work was an application.

> "Early in life," says the author "Leibniz was actuated by two distinct desires in his study of things—by the desire to know and think clearly, but not less by the wish to do everything for a purpose and a use. As he rose to the higher aspect and deeper meaning of things, these tendencies became more clearly defined. Clearness and precision of thought meant for him more and more the mathematical and mechanical treatment of scientific problems, while, at the same time, his regard for the practically useful attained a higher significance. It meant that everything in the world had a deeper sense, a meaning, a purpose; that the universe had been created for an end, and that this end was being achieved through the mechanical laws which are the external formulæ of the internal essence of things" (p. 69).

This passage may be taken as giving the key to Mr. Merz's whole exposition. The Law of Continuity, and his logical principles of Contradiction and Sufficient Reason, notified Leibniz's adherence to the mechanical view of things (p. 138). But along with this conviction of the necessary connexion of all things by mechanical laws, he held to the permanent individuality of the monad. And it is the connexion of these two points of view that forms one of the greatest difficulties of his philosophy; and as such receives prominent treatment here. Other difficulties—such as that of the relation of God to the monads, or the difficulties caused by Leibniz's expressions regarding the reality of corporeal substance and the relation between body and soul—are omitted from the author's plan, perhaps as dealing more with the systematisation of Leibniz's thought than with the principles which guided it. But Leibniz himself never lost sight either of his mechanical or of his teleological point of view; and it was largely owing to their competing claims that he was forced to formulate definitely his doctrine of pre-established harmony. Yet this doctrine can only serve to explain the consistency of his view of universal inter-connexion with the exclusiveness of the monad, when these two poles of his thought have been already reached independently. Leibniz himself does not seem to have passed from one of them to the other by any logical process. And the author is certainly not far wrong in tracing to a subjective cause the connexion of the two principles in his mind: "Leibniz's love of regularity led him to the mechanical view of nature; his practical sense, his desire to see a purpose in everything, made him decide for the individualistic solution of the great problem" (p. 179). At the same time it should be remembered that Leibniz suggested that these points of view might be brought together in a way which was, however, never worked out by him. He saw, moreover, as Mr. Merz points out (p. 98), that the solution of the problem could never be reached by explaining one set of circumstances or phenomena mechanically and another set by final causes. And, the author says :—

> "The development of opinions during two hundred years has proved that Leibniz was right. The system of interpolation and compromise, such as that attempted by Clarke, has become impossible. The world of mechanical laws, further extended, has left no room for the world of final causes, living in the governing mind of a Deity ; and the only way out of the embarrassment is to resort to some process of remodelling the notions."

This is what Leibniz tried to do, not in the way adopted by his great contemporary Spinoza in reducing the notion of teleology to a subjectively-biassed explanation of the facts of mechanical sequence, but by the theory that, when we trace physical laws to their source, we find that their nature and position can only be explained by reference to an ideal or rational causality working for a purpose or end. Leibniz thus expressly rejected the method of compromise, and held at once to the thorough-going mechanical connexion of natural events and to the view that nature and its laws are expressive of purpose. But he left the theory without fully establishing what it required to have established—that the notion of mechanical sequence is in itself incomplete and one-sided and contains an implicit reference to the notion of final cause.

This want of conclusive logical connexion seems to be regarded by the author as due, not so much to the incompleteness of Leibniz's speculative analysis, as to the necessity of making certain cardinal assumptions before it is possible to think philosophically or at any rate to come by a system. "Leibniz," he says, "was a philosopher, and as such he had certain primary principles which biassed him in favour of certain conclusions" (p. 141) ; and Locke is referred to as representing an "opposite and equally legitimate" school of thought to Leibniz's (p. 153). Yet it may well be that these and other opposed theories are only equally legitimate in so far as capable of reconciliation from a higher point of view. The history of philosophy has been a succession of more and more comprehensive efforts after such reconciliation. Leibniz's own thought was an attempt to combine opposed methods : as the author suggestively puts it, using the words of Lotze, "to calculate and predict phenomena, but also to understand and interpret them" (p. 183).

The one-sidedness of Leibniz's own philosophy consists, according to Mr. Merz, in its "apotheosis of logical method" (p. 188) ; and he thinks that it was Schelling, more than any other among modern thinkers, who supplied the idea the want of which was the "inherent defect" of the Leibnizian teaching (p. 210). And Schelling is regarded as the centre of a new movement because he infused the element of poetic feeling into the purely logical development of previous systems. If Mr. Merz would do for Schelling what he has in the present volume done for Leibniz, and perhaps, thereafter, follow up these two different lines of thought by an estimate of the position held by Lotze to both of them and to the philosophy of our own time, it would not only contribute to the completeness of the series of "Philosophical Classics," but would be of peculiar value as representing a school of thought which, as many indications prove, has a future before it in this country.

W. R. SORLEY.

The Objectivity of Truth. By GEORGE J. STOKES, B.A., Senior Moderator and Gold Medallist, Trinity College, Dublin, late Hibbert Travelling Scholar. London: Williams & Norgate, 1884. Pp. 118.

Mr. Stokes's book is not always easy reading. His German studies have beguiled him into sentences that sometimes grow to portentous dimensions. There is one, for example, on p. 4 which runs to 14 lines with nothing but commas to help the struggling reader; and there is another of 21 lines on p. 36 in which the semi-colon and parenthesis extended to him are somewhat of the nature of straws to a drowning man. But it is right to say that these are exceptions, and that Mr. Stokes's occasional disregard of externals is generally due to the intentness of the thinker upon his thought, or to his desire, by multiform presentment, to drive it home to his reader. The book is written throughout both with force and acuteness. The author cannot be accused of misapprehending the views which he criticises; hence his criticisms, even when they might be rebutted, help to light up the real meaning of philosophic doctrines. The thesis which the Essay defends is, at the same time, sufficiently in line with questions at present in dispute to make it a real contribution to the debate. Stated shortly, Mr. Stokes's central position is the necessity of an *object* of thought in order that thought may have a real reference, *i.e.*, *be* thought or cognition. He argues, therefore, for a philosophic Dualism or Natural Realism as against a system like Hegel's; but as against a Natural Realism like Reid's, or even Sir W. Hamilton's, he has, on the other hand, so much to say that he often relapses into something very like the Hegelianism which he set out by condemning. A short survey of the argument will best show Mr. Stokes's attitude towards the two theories between which he attempts to mediate. It will also serve to make plain the general standpoint from which he looks at the history of modern philosophy.

The aim of the Essay, as stated in the Preface, is "to enunciate a principle that may re-unite the divergent streams of speculation which flowed from Kant and Reid". The first chapter, on "The Empirical and Dogmatic Schools," explains briefly the rise of the problem which Kant and Reid attempted in different ways to solve. Locke, as Mr. Stokes points out very truly, introduced the habit of "dealing with ideas and processes of knowledge as they are *cognised* rather than as themselves cognitive states of mind". In other words, the objective reference of cognition or knowledge or ideas as such tended to be superseded by a merely psychological consideration of them as "states of consciousness" or mental facts. For the Empirical school, therefore, "the knowing or the series of impressions and ideas displaces the objects of which it is the knowing, and becomes itself at once the knowing and the sole thing known, or rather it ceases to be *knowing*". This is Hume's position, which leaves nothing beyond the succession of unreferred impressions. In the Rationalistic philosophy, on the other hand, as we find it in Leibniz, "the implicative nature of thought," as Mr. Stokes calls it, may be said to be preserved. The thought-processes of each monad have an ideal reference beyond themselves; each monad is a mirror of the universe. But, each monad being shut up within its own internal nature, there is no necessity in the system for such an objective or cognitive reference. It requires to be superadded by the (properly miraculous) theory of the Pre-established Harmony; that is, it is simply asserted. In the Leibnizian monad, says Hegel, ideas rise like bubbles; and the endless serial development of one out of another recalls, therefore, Hume's "bundle or collection of different perceptions which succeed one another with an inconceivable rapidity and are in a perpetual flux and movement". Thus both Empiricism and Dogmatism fail to explain knowledge; they give us, instead of cognitions, psychological states considered simply as such.

We pass accordingly in chap. ii. ("Idealistic and Realistic Objectivity") to consider the method by which Kant and Reid respectively endeavoured to break through the charmed circles of ideas and reach truth or objective knowledge. Taking judgment as the central function of mind, Kant clearly recognises the presence and necessity in knowledge, as such, of an objective reference; but he calls upon us to renounce the quest of the absolutely real and to content ourselves with a phenomenal objectivity. The special form of the Kantian theory speedily disappeared in Germany. It was impossible that the thing-in-itself could survive in the form which Kant had given it; and so there arose a new Idealism in which the notion of anything beyond or outside of thought is systematically denounced as self-contradictory. Mr. Stokes makes it an objection to this whole mode of philosophising that it "treats thoughts no longer as thoughts but as things". As against it, he emphasises the fact that "a thought is the thought *of* something". He considers it "a merit in Hegel that he has conceived thought as involving not merely identity but also difference. But then he conceives thought as itself giving birth to the difference through which thought is, as creating its own determinations. But thought can in its own person create nothing, not even itself. 'Abstract notions,' says Bishop Butler, 'can do nothing.'" As this sentence from Butler is taken as the motto of the Essay, Mr. Stokes would seem to be inclined to make common cause with Reid's Realistic, rather than with Hegel's Idealistic, Objectivity. Comparing Reid with Kant, we find that Reid sought to escape from scepticism "by simply pointing out the general character of knowledge, of perception, that it is cognition out of itself, from its own nature, of an object distinct from itself" (p. 23). "In other words, Reid really did what Kant claimed to have done, he retorted the game which Idealism plays upon itself. Idealism said the external world exists only in the knowing, therefore it is not. Reid sees that if it is not, the knowing of it cannot be" (p. 35). In accordance with these passages we find that, when Mr. Stokes comes to state his own position in the third chapter ("The Objectivity of Truth"), he expressly asserts, against Hegel, thought's transcendence of itself, and apparently endorses Natural Realism:—"It is perfectly true that thought cannot, so to speak, get outside of itself. . . . All such transcendence of itself by thought remains itself thought and a thinking process. . . . Still, the very nature and essence of thought, and every particular thought, is the transcendence of itself, not of itself by itself as thinking, but of itself *by* and *in* that which it thinks. Thought, without ceasing to be thinking, does, through its very nature as thought, in its relation to the object, cognitively go forth out of itself to it, and through the presence of the object which it thus cognitively determines is this the thinking cognition of thought itself determined. Thought is, in every case, the cognition of an object, which really, actually, existentially out of thought, is ideally, intellectually, intelligibly within it; and just because within in the latter sense, is it known as actually without in the former" (p. 53). But he has no sooner said this than he finds it necessary to protest against the separation of the two sides—Being and Thought. The Realistic school err in hypostatising the object and using it as an explanation of the origin and constitution of the faculty of thought. The Idealists err no less in the way in which they conceive the relation of thought to objectivity. The relation is not to be conceived "as though thought were a something ready made, coming from elsewhere, and giving birth to the objective world as it or its. In such a case it is itself only another object producing that world; but the fact is, it is itself only in the production of that by which it is produced" (p. 58). This is to all intents and purposes, even in the antithetical form given to it, a Hegelian statement. Mr. Stokes condemns Hegel's as "a bastard objectivity". It merely points, he says, to "thought here and thought there". But when he comes to explain his own meaning, we find him saying of the object of thought:—"In thinking this object, thought does not think simply itself. In so far as it thinks itself, it thinks itself *materialised*, and so far, other than itself" (p. 50). Now "otherness" and "materiature" or "petrifaction" are the very phrases which Hegel (followed by Dr. Stirling) employs to body forth his own position. I cannot see that in either case the expressions used throw much light on the fact. But one way in which an argument like Mr. Stokes's may be useful is by making the "Hegelians" among us ask themselves how far they are prepared to let nature go free, in Hegel's own phrase, from the notion or from subjective thought. What is the precise meaning which they attach to the externality of thought to itself in nature—to the relative independence which they admit to belong to the object? In some expositors, the idealistic tone predominates, and we seem not far removed from Subjective Idealism; in others the realistic prevails, and nature, as we may say, gets so much line that we seem almost to join hands with Natural Realism. Dr. Stirling, it may be noted, has always inclined to the latter mode of presentation, and perhaps increasingly so in his later works.

From a more general point of view, Mr. Stokes's Essay is valuable as a protest against the neglect of "reality" by the Idealistic systems that take their rise in a theory of knowledge. There ought to be no quarrel with the motto he has chosen, "Abstract notions can do nothing," nor with his addition thereto, "They cannot even of themselves *be*". Nature is not simply the categories doubled. It is only because the universe exists as a concrete reality that thought exists in its relative opposition to being. This concrete reality is what Hegel calls Spirit; Spirit is throughout assumed by Hegel as a fact, and his system is the analysis of its nature. And, of course, Hegel always assumes, too, that concrete Spirit is a great deal more than abstract notions or even than abstract notions reflected back upon themselves. I must confess that I have never been able to see where or how Hegel *deduces* this something more (feeling, for example, with all its implicates); but neither do I find Mr. Stokes completely successful in that respect. From the nature of the case, Being can only be described in terms of thought; our systems are descriptions of existence by the systematising intellect. But it is misleading to assert (or to seem to assert) that the notions we use in the description *are* existence. If some Hegelian thought seems to involve this claim, Mr. Stokes does good service in calling attention to the fallacy. His polemic on this point does not prevent him from laying down in his concluding chapters ("The Objectivity of Truth in Science" and "The Objectivity of Truth in Religion") a position substantially the same as Hegel's, *viz.*, that the only standpoint from which the universe can be viewed organically is that of an existing intelligence.

ANDREW SETH.

Lectures on the Philosophy of Law, designed mainly as an Introduction to the study of International Law. By WILLIAM GALBRAITH MILLER, M.A., LL.B., Lecturer on Public Law (including Jurisprudence and International Law) in the University of Glasgow. London: Griffin, 1884. Pp. xv., 432.

The law of nations is deemed, by a standing literary and academical tradition, to have some peculiar and intimate connexion with the law of nature, which in modern usage has come to mean the philosophy of law in general. Yet the most successful writers on international law have not been those who most professed to be philosophers. Nor does philosophy much abound among the sort of men who are most active in making precedents for this branch of jurisprudence. But a body of doctrine which may be definitely said to owe its existence to an ethical and philosophical movement, and which is still more or less vague in principle, and, as compared with municipal law, both uncertain and scanty in details, offers irresistible temptations, as it may assert a historical claim, to greater freedom of speculative treatment than lawyers permit themselves in things clearly proper to their art. Mr. Miller was quite in accordance with Continental and Scottish custom in putting forth a scheme of *Naturrecht* "as an introduction to the study of International Law on a scientific basis"; although this involves the discussion of many things that do not appear at first sight to have much bearing on the laws and usages of war, neutrality, territorial sovereignty, and the like, or indeed any bearing at all.

Indirectly, Mr. Miller's work is a protest against the English school of jurisprudence as conceived by him. He says, "At the time I commenced to lecture, it seemed to be a tenet of the orthodox English school of jurisprudence that International Law was not law, and the most satisfactory mode of answering such a contention was to examine the nature of law in general". I am not quite sure what the orthodox English school of jurisprudence is, or where it is to be found. Recent serious writers in England on the philosophy of law may still be counted on one's fingers. I doubt whether more than half of them, if so many, would accept Austin's dogmas about the distinction between Law and Morality, or in particular the dogma that International Law is a kind of Positive Morality. In any case, it is open to doubt whether our Universities and the Inns of Court can be said, as yet, to have established a school of jurisprudence at all, though it is to be hoped we are on the way to it. For my part, I so far agree with Mr. Miller as not to accept the supposed orthodox tenet. But I find the rejection of it possible without an appeal to Hegelian negations of negations, or schemes of Kantian and quasi-Kantian categories, or other things understanded neither of lawyers nor of publicists. And a philosophy of international law which leads its followers to the conclusion that "pure neutrality is impossible now-a-days," and that, instead of aiming at impartial justice, "neutrals must make up their minds on which side right is, and give assistance to that side,"—in other words, must entitle the other side to treat them as enemies—does not appear obviously fitted to promote the peace of Europe, and does appear to be founded on the standing confusion between acts of a State in its sovereign capacity and acts of individual subjects of that State. It is not true that "Great Britain sympathised with, and assisted to some extent, rebels against the Government of the United States". These things were done by many British subjects, and the question was raised whether and how far their Government was bound by the law of nations to prevent them. But England, as a State, aimed at all events at exercising a perfectly impartial neutrality. No doubt, belligerents would always like to increase the burdens of neutrals; and the Continental literature of international law, being mostly French or German,—in other words produced by citizens of powerful military States whose immediate interest is to exaggerate the claims of belligerents—has lately given a show of authority to this tendency. But it would not the less be a retrograde step if the accepted law of nations came to approve such intolerable pretensions against neutrals as were set up by some American publicists during and after the war of Secession, and by some German ones during the war of 1870. Mr. Miller, to develop his theory fully, should be for restoring the good old times of non-belligerent subsidies of money and contingents of troops, with the difference that the judicious neutral, instead of being bound by treaties with his allies to furnish them such advantages in their quarrels, would be at liberty to offer them of his own motion to that side on which he finds the better right.

As to the philosophy of law in general, it is not to be supposed that the English school (so far as there is a school) rejects Hegelian or other transcendental schemes thereof out of mere blindness. One may think it impossible that there should be any philosophy of law (which itself is a kind of philosophy); and this is probably the view implicitly held by most English lawyers. Or one may think such a philosophy possible, but reject the Hegelian form of it, for instance, because one thinks Hegel's philosophy wrong in itself, and therefore not likely to be profitable when systematically applied to jurisprudence. Apart from this, again, one may hold that if there is a philosophy of law properly so called, it must be something different from the philosophy of the State in general, and constructed on more narrowly bounded data. Jurisprudence is intimately connected with

Politics, but it must be a special branch of Politics, not merely a special aspect. What strikes an English lawyer about systems of *Naturrecht* is that the lines between Ethics, Politics, and Jurisprudence, are nowhere adequately drawn. An engineer ought to be grounded in the general principles of mechanics. But you cannot learn how to make or drive a steam-engine out of Thomson and Tait's *Natural Philosophy*. The philosophers do not seem to see that jurisprudence is quite as much a special study as engineering. And so, in the theory of Jurisprudence itself, the consideration of the fitting scope and purposes of law—the teleology of law, or, in Bentham's hardly adequate phrase, the theory of legislation—is not clearly distinguished from the analysis of legal institutions and ideas as they exist in a given stage. If the English school has done nothing else, it has made a serious endeavour to work out these faintly perceived lines, to effect this unfinished distinction. Austin did not, in my opinion, make any advance at all upon Hobbes in the theory of politics. But he did make an advance—and made it all the better, perhaps, for the hardness and narrowness of his view—towards the clear conception of a theory of law distinct both from the theory of politics proper and from the theory of legislation which forms the connecting link. Not that he always applied his own distinction with success. Very few speculators do. For example, he tried to account for federal constitutions with his theory of sovereignty; a desperate or all but desperate enterprise on the face of it, inasmuch as a federation of states which preserve their individuality must have a kind of international character, and Austin had expressly excluded international relations from his conception of law. Being undertaken, however, this enterprise leads Austin (without his knowing it, apparently) clear out of the field of positive law to which he anxiously sought to confine himself, and into the field of politics—and very doubtful politics too. But such failures in detail, once found out, count for very little. Of course they must be criticised until people have left off defending them; and as Austin still has worshippers, I fear the stage of criticism is not past. Yet I would fain hope, for my own part, that the time is within sight when Austin may be put on the shelf for the respectful remembrance of teachers, and the release of students; having secured us in possession of the truism (which experience has shown transcendentalism to be strangely capable of obscuring) that for lawyers at any rate there is a highly material difference between those rules which are enforced by courts of justice and those which are not.

As to Mr. Miller's philosophy, he reviews the contents of positive law with sufficient store of illustration (and, be it said in passing, with too many citations of a second-rate or trivial kind, perhaps intended—and if so, ill-advisedly—to make the work more popular with students), in a fairly readable style, and in an inconvenient and non-juristic order, to use a barbarous term for once. This order appears to be derived by Mr. Miller from his own meditations on the Kantian categories. Being myself of the opinion, orthodox or not, that Kant's categories are the dreariest and least profitable portion of his work, and that the whole scheme is contrary to his own better principles, I cannot pretend to be interested in this development of Mr. Miller's. The kind of result it gives him is to add to Sir Henry Maine's now well-known law of the progress of society "from status to contract" the extended formula that "society has progressed from contract (causality) to reciprocity"; which does not appear to me luminous enough to justify the wisdom of the method that gave it birth. My doubtful impression is that, if I knew what it meant, I should not agree with it. The application of the antinomies to the generalities of politics and law, which Mr. Miller proceeds to make in somewhat the same fashion, is not less ingenious and more amusing, but I fail to see that any good comes of it. And then, up and down the book we may learn such things as this: that the reason why carelessness which does no harm to any one is not a common-law offence, is "because the person offending does not set up his will as right in antagonism to the universal will". *Sir, nous diomus que tiels parolx ne sount mye profitables pur lentendement del comen ley*—or in English: I must confess that, little as I like Austin, I think the present state of the English student set down to Austin is more tolerable than it would be under the dispensation of Scoto-Hegelianism. There is a certain cheerful simplicity, too, about Mr. Miller's transcendental creed. He bids critics ponder the fact that the historical development of legal ideas is in accordance with Hegel's scheme. Perhaps it is: but if any philosopher of ability, let alone Hegel, constructed a theory of development capable of being contradicted in any large application by well known historical facts, we should not only disagree with his theory, but call him a bad workman.

A lawyer, as such, exists but on sufferance in these pages. Yet I must point out that dealers in transcendental jurisprudence are apt, while their heads are in the stars, to let their feet go astray in the more terrestrial *axiomata media* of the science; and I fear Mr. Miller has not wholly escaped this peril. Thus he says that "very little of our constitutional law is due to judicial decision": a dictum hard to reconcile with a good many decisions, ancient and recent, which have been thought to have something to do with it, and of which Bradlaugh *v.* Gosset, the latest example, is also a good typical one. His occasional remarks on American institutions appear to confuse things which are accidental and may be the expression of a particular theory with things essential for the existence of a federal state. The Supreme Court of the United States has to judge of the validity of legislative acts, not because of a modern "tendency to disregard form in order to attain substantial justice," but because neither a federal legislature nor the legislatures of the federated states can be allowed unlimited powers if the federation is to be a reality. The two or three pages on the early history of Contract are not only too vague and slight in themselves, mixing up fact and hypothesis, as the farmer's daughter jumped over tables and chairs, "with apparent ease," but they might well mislead students by letting them suppose that an exceedingly difficult subject is an easy or an exhausted one. Now, if we cannot trust Mr. Miller in the Constitution of the United States or the history of Roman Contracts, which we have seen, how shall we trust him in things in general which we have not seen?

The book is, to its credit, well indexed. And there is a classfied bibliographical appendix of which the general idea is meritorious. But in execution it is too little for completeness and too much for a select list. Oddly enough, Mr. Justice Stephen figures among the historical school. He ought to go with Hobbes and the utilitarians, of whom he is the legitimate and uncompromising successor: in dealing with the Criminal Law he has been historical perforce, not of freewill. Small matters these may be in themselves: but we profess a science and art which are nothing if not critical. Philosophy is well, but exactness in one's own business is first.

If I may add one word of counsel to those who seek to gather treasure abroad for the philosophical study of law, I would say: 'Go not after Hegel, nor any other philosopher who explains law because he must explain everything; but seek after the philosophical jurists who know law first, Savigny, Bluntschli, Holtzendorff, Ihering, Holmes: and you shall find your reward'.

F. POLLOCK.

Logik. Eine Untersuchung der Principien der Erkenntniss u. der Methoden wissenschaftlicher Forschung. Von WILHELM WUNDT. Zweiter Band. 'Methodenlehre.' Stuttgart: Enke, 1883. Pp. xiii., 620.

This work is the supplementary volume on the subject of general Logic to one which appeared four years ago (reviewed in MIND XIX.). As the names *Erkenntnisslehre* and *Methodenlehre* imply, the earlier volume dealt rather with the formal and abstract aspect of Reasoning, whilst the latter is devoted to a somewhat detailed examination of the principles, methods, and results of the special sciences. It is an astonishing product of ability and industry. No important branch of science, whether physical or mental, is passed over without a careful examination, extending from its earliest history to its very latest developments; and the knowledge thus displayed is—at least within any power which the writer of the present notice has to judge—as accurate as it is extensive. The only English works which will give the reader a notion of the general scope and plan of the author are, perhaps, *The History* and *The Philosophy of the Inductive Sciences* by Whewell; but it must be admitted that these stand a very long way second in respect of catholicity of comprehension and minuteness and accuracy of treatment.

As the reader may already infer, any attempt to give a detailed critical examination of such a work is out of the question. Of the only two remaining alternatives, *viz.*, that of singling out a few of the leading ideas for examination, or of giving, without criticism, a brief summary of the main details of treatment adopted by the author, the latter, though less attractive, will probably be far more convenient to the reader. The work begins with an examination into the foundations of Induction and Deduction. The question raised here is as to the elementary methods of which these operations are the outcome. These methods are found to be Analysis and Synthesis, each of which exists in three different stages: *e.g.*, the former, in that of the merely elementary analysis of common life, the causal analysis of a phenomenon into its necessary sequences, and what may be termed logical analysis. The first of these stages (as explained in the earlier volume which dealt with the more formal part of the subject) leads naturally to the common disjunctive proposition; it merely separates the complex data of nature into their more obviously constituent elements. The second covers the ground of comparatively systematic or scientific thought, its practical application being found in the recognised experimental methods of science. The third takes a wider view, aiming at the discovery of all the determining conditions, but seldom completely succeeding except where, as in the fields of Mathematics and of Law, the concepts with which we deal are wholly or in great part our own mental construction, so that we can, so to say, get to the real bottom of them. These general methods are then regarded in their principal logical applications, *viz.*, Abstraction and Determination, Deduction and Induction. Of these processes the second and fourth are respectively regarded as the inverse of the first and third. Abstraction is a process of elimination, and is divided into what are termed respectively *isolating* and *generalising* abstraction. (This, it may be remarked, is the solution given by Prof. Wundt to the question sometimes raised in our text-books as to whether it is possible that there should be abstraction without generalisation: his answer in effect is that the two processes are really quite distinct). Determination, again, is the inverse of abstraction, and yields the two subdivisions of Colligation and Specification. This colligation, it should be observed, is not used in Whewell's sense, but signifies the artificial reintroduction into a phenomenon of those modifications which had been laid aside from consideration during the previous process of abstraction. Specification is used more in its ordinary sense, of proceeding from a genus to the species or the individuals, by the addition of limiting attributes or concepts.

On the general question as to the nature of Induction, Prof. Wundt inclines to the view that it is the inverse of Deduction. But this needs a little explanation, as his account of their mutual relations does not seem to me to be by any means the same as what is commonly understood by the expression. As I apprehend the matter, the statement of the inverse relation should be as follows :—Deduction starts from given premisses and obtains a certain conclusion ; the inverse process to this is to assume the conclusion as given, and to inquire, What must have been the premisses from which this conclusion was derived? The answer to this question is, of course, in the majority of cases indeterminate in character. That this was the view of Jevons, who first introduced the particular technical expression 'inverse' into use, there can, I conceive, be no doubt : in fact, a section of the *Principles of Science* is devoted, under the heading of "The Inverse or Inductive Problem," to this precise problem, *viz.*, Given a result, what were the propositions from which this result might have been derived? But such a problem as this, it must be remarked, though indeterminate is absolutely certain ; that is, though different groups of possible premisses might be selected, yet any one of them will necessarily yield the conclusion : there is nothing in this conclusion, as Jevons repeatedly admits, which is wider than the premisses. But in the tabular scheme of Induction and Deduction, given by Prof. Wundt (p. 21), we have them arranged in the familiar plan commonly adopted by interpreters of Aristotle, *viz.* :—

INDUCTION.	DEDUCTION.
SP	MP
SM	SM
MP	SP

with the express notification that Induction is of the nature of the third figure. I do not see the propriety of terming this an 'inverse' relation. The view of Jevons, as of Whewell, who had taught substantially the same doctrine though he had not introduced an appropriate technical term to designate it—was that *no* rules whatever can be given for Induction. We must simply assume our premisses, by practical and sagacious guessing, reason deductively from them, and test the conclusion by experience. // Chevel It does not at all seem to me to describe their view to say with Prof. Wundt that "every Induction is a conversion *(Umkehrung)* of the ordinary syllogism of subsumption of the first figure".

A little further on, the same question is touched upon again. Discussing the methods of Induction, he distinguishes between two operations, *viz.*, (1) that of limiting the possibilities by a due recourse to Analysis and Synthesis, and then (2) arguing hypothetically from each such assumption in turn and comparing the result with experience. This latter seems to me exactly what Jevons understands by Induction, but as Prof. Wundt says it is fundamentally of the character of Deduction.

Turning to Definitions, we find the distinction between those which are *real* and those which are *nominal* kept up; in the sense that the nominal is understood to be the mere substitution of one word for another which may be less known, just as we may translate a sentence into a better known language. The real, on the other hand, looks to the scientific connexion of the words or concepts, and the relation in which the phenomena with which they are connected stand towards each other.

The main principles of Scientific Classification are fully and clearly explained. In place of the ordinary distinction between natural and artificial classification is substituted a three-fold one into the *descriptive*, the *genetic*, and the *analytical*. The merely descriptive one takes account solely of the co-existence of the attributes possessed by the things which are to be arranged, without seeking after their inner connexion or their origin. So far we are resorting to Analysis only. As we then proceed to appeal to Synthesis—either by active construction or more passive observation, according to the nature of the subject-matter—we begin to obtain a genetic classification in which the production of the determining attributes has to be considered. The province of Mathematics of course offers the most wide and familiar illustration of this stage, as when, to take a simple example, we arrange the various curves of the second order according to the processes of construction by which they may be obtained. But wherever possible, we want to proceed further in the way of synthesis than this. We seek to know not merely the mode of production of the constituent elements of our concepts, but to obtain the fullest possible expression of the permanent relations of these elements to each other. This involves a fresh appeal to Analysis, and leads to the analytic classification in the narrower sense of the term. It differs from the descriptive in that it does not merely study the arrangement of the attributes but aims at a full account of the laws by which they are mutually connected. Like the preceding it is hardly attainable except where, as in Mathematics and to some extent also in Jurisprudence and Political Economy, we are able to penetrate to the essence of the notions with which we deal, owing to the extent to which they are of our own construction.

The Doctrine of Proof follows the same leading division; that is to say, the distinction between Analysis and Synthesis is taken as the principle of classification amongst the different kinds of proof. As the consequent arrangement is very different from that which is given in any of the hand-books familiar in England, it may be desirable to describe it somewhat more fully than would otherwise be expedient. It resembles in some respects that which Lotze has given in his *Logik*, but is more elaborate; moreover, on some points Prof. Wundt distinctly rejects the scheme of his predecessor. Starting then from the commencement we divide into *direct* and *indirect* proofs, in the former the thesis itself being established, whilst in the latter we aim at disproving all the possible counter-theses. The direct proofs fall, in accordance with the main division of scientific method, into the *deductive* and the *inductive*. The process of Deduction may be carried out either *synthetically* or *analytically*. By this is meant that we may either assume that the requisite premisses have been somehow obtained, and then argue from them to the conclusion; or, starting with the conclusion only as definitely before us, reason from it to such consequences as will establish it. The former corresponds to the familiar Aristotelian syllogism, which has thus obtained far more prominence than its comparatively subordinate position fairly entitles it to. Its main merit consists in its comparative convenience and elegance: its defect is found in the fact that there may often be nothing in the process to suggest how and why the premisses came to be chosen, the conclusion by no means obviously leading up to them. On the other hand, the analytic process is more orderly in respect of practical convenience, as it reasons from the conclusion which is confessedly before us. It is subdivided into two, according as the consequences consist of *general* propositions including and establishing the thesis—these Prof. Wundt terms *categorical*, in that we thereby acquire certainty equal to that of the synthetic process—or as the consequences are *particular* facts. This last is called *hypothetical*, in that the conclusion is only a more or less probable one. The Inductive proof again is divided into the *theoretic* and the *practical*, according as what we seek to establish is a general proposition or a single fact. The former of these is naturally more prevalent in the province of science and the latter in that of common life and that of the criminal law courts. As regards indirect proofs the distinctions amongst these are made to rest upon what seem more artificial grounds, *viz.*, the number and the nature of the alternatives amongst which we have to choose. They are termed respectively:—*disjunctive*, when we have three or more positive alternatives, A, B, C, at our selection; *contrary*, when we have two only, these being each marked by positive attributes (such as, in fact, are often termed material contradictories); and *contradictory*, when the alternatives are of the formal A and not-A description. The scheme of arrangement might therefore stand as follows:—

- Proofs
  - Direct
    - Deductive
      - Synthetic
      - Analytic
        - General propositions.
        - Particular propositions.
    - Inductive
      - Proving a general theorem (theoretic).
      - Proving a single fact (practical).
  - Indirect
    - Disjunctive form.
    - Contrary form.
    - Contradictory form.

So far we have been considering the General Introduction. As regards the more detailed discussion given to the special sciences, the priority is naturally assigned to the most abstract, *viz.*, Mathematics. One of the first inquiries meeting us here is the special use and significance of the processes of Analysis and Synthesis as applied to this science. The common but extremely vague employment of the former term, as in 'Analytical Geometry,' calls for some determination. Prof. Wundt assigns the leading place in the interpretation to the two following characteristics :—It will be remembered that Analysis is always supposed to take a proposition for granted; it then proceeds to deduce consequences therefrom, and the verification of the proposition is rested upon the acknowledged truth of these consequences. Now, in mathematical analysis, according to the general conception of it introduced by Descartes, there are two reasons why the process is distinguished from the ordinary application. One of these is found in the employment of algebraic symbols. By their use we are enabled to secure, over a vastly enlarged range of cases, the condition that some element shall be considered as known or given; for all the elements of the problem, whether originally included among the data or not, admit of equally easy representation by means of symbols, and it becomes easy then to detach and isolate the one which we require. The other consists in the fact that we couch our expressions in the form of equations. The defect of the ordinary analytical process is that the deduction of a true consequence is no necessary proof of the truth of the premiss, but only confers upon it a greater or less degree of probability. But if the consequence and the ground are reciprocally connected, *i.e.*, if the former necessarily carries the latter with it, matters are altered. Now this is obviously the case in Mathematics, for the equational form is convertible, and the relation of equality enables us to proceed with certainty from consequence to cause in a way which could not generally elsewhere be allowed.

The more detailed examination into the logical nature of mathematical assumptions and processes is too intricate to interest, or indeed be intelligible to, any but professed mathematicians; but a few remarks may be made upon the treatment of such critical questions as the foundations of the Differential Calculus and the explanation of the 'Infinite'. On the former of these two points Prof. Wundt's account is very full and suggestive. He distinguishes and discusses the characteristic assumptions in each of the three main accounts of the basis of Differentiation: *viz.*, the doctrine of Infinitesimals, that of Limits, and that of Derived Functions or of Expansion; accounts which may, roughly speaking, be connected with the three great names respectively of Leibniz, Newton, and Laplace. But, though not regarding these as really hostile views, he seems to recognise in them a reality and depth of distinction which many will hardly be able to follow. This point is connected with a view which he has expressed in an earlier chapter (on Number) on the possibility of admitting, as an element in calculation, the infinitely great and the infinitely little. Here he has some remarks which will seem rather hard sayings to what may be called old-fashioned mathematicians. Speaking from this latter standpoint, and with an acute consciousness that those who have not followed the speculations of later mathematicians cannot judge adequately of the question in dispute, I must confess to feeling considerable hesitation and doubt here. With regard to the contradictions found to attend the notion of anything *absolute* in infinity, in either direction in which it may be taken,—as illustrated alike by mathematical philosophers like Berkeley and by the non-mathematical like Hamilton,—these seemed almost entirely avoided by adhering to the conception of a 'limit'. All geometrical difficulties seemed to be smoothed when we assumed that a differential coefficient simply indicated the rate of change of some variable element—a perfectly determinate magnitude; that all magnitudes were to be regarded as essentially finite; and that all that was meant by calling them infinite was to consider them capable of indefinite extension or diminution: the value 'at infinity' or 'at nothing' being the value—again perfectly determinate and as a rule finite—towards which we found the variable magnitude or its function to continually tend. Now, as against all this, at least as against its completeness, we have the conception introduced of the absolutely infinite number. "By reason of the perfected freedom of conceiving *(Begriffsconceptionen)* enjoyed by mathematics, it is possible to assume that there is an absolute value $\omega = \infty$, which not only marks the limit to which the series of numbers approximates without end but in which this limit is actually attained" (p. 127). And various consequences are deduced from this assumption, such as that the ordinary law of commutation may fail for these "transfinite" numbers—as they are called in distinction from the commonly recognised infinite numbers—so that though $1 + \omega = \omega$, we may have $\omega + 1 > \omega$. This distinction between transfinite and infinite (which is not, of course, Prof. Wundt's own introduction, but taken from the speculations of some advanced mathematicians) is repeated in the discussion upon the foundations of the Differential Calculus, and it is maintained that the neglect of it has marred the analysis and criticism of other authors.

After the discussion of the more abstract subject of Mathematics, we come to what is one degree more concrete, *viz.*, Mechanics. This section is mostly devoted to a minute account, partly historical, partly critical, of the various general principles which have been assumed or deduced in order to explain the observed facts of nature, so far as motion is concerned. Thus we have as a starting-point some of the principles assumed by the early Greek investigators, *e.g.*, their rather crude doctrines of mechanical causation on the one hand, and of teleology on the other. These are explained and tested, and it is inquired to what extent they withstood, or were modified by, the advance of the spirit of independent criticism. Coming to more modern times, the first prominent figure in this particular direction is that of Galileo. His principle of Conservation is passed in review; and its relation to Newton's three laws, and in particular to the doctrine of Inertia, is considered. A considerable part of the chapter is occupied with an account of the two opposed doctrines of Momentum and Vis Viva, in the well-known dispute as to which was to be considered the truest measure of force. These are fully discussed and described, both as originally held by Leibniz and others, and also as modified by subsequent investigations. As Prof. Wundt remarks, the modern doctrine of Energy, of which that of Vis Viva was a particular dynamical case, has given a vast extension and consequent triumph to the latter. But the generalisations to which the former has given rise are by no means unimportant. In particular, the wide physical generalisations, such as that which is known as the Conservation of the Moment of Momentum, and its importance in cosmological theories (such, we may remark, as certain speculations of Mr. Herbert Spencer in this direction) are noticed. Another instructive discussion is that which is devoted to the various modifications of Maupertuis' Doctrine of Least Action, which Prof. Wundt maintains to have been, in its original form, an almost purely teleological principle in the way in which it regarded Nature as the great Economist of Force. The same principle is examined in the forms which it successively assumed in the hands of Laplace, Rowan Hamilton, and Jacobi. "The maximum and minimum principles have at last assumed their final form in the Principle of Least Constraint established by Gauss. According to him the movements of a system of masses, however the masses may be connected together, take place at every moment in the utmost possible agreement with their free movement, and therefore under the least constraint. As measure of the constraint, is taken the sum of the products of every mass into the square of its departure from free motion" (p. 265).

Generalisations such as those afforded by these laws of motion offer an admirable field for logical investigation in the attempt to examine their independence and comparatively fundamental or intuitive character. Though mostly too wide and abstract to lend themselves readily in any direct way to constructive purposes, that is, to the establishment of concrete facts, they will often serve as most convenient short cuts to the disproof of particular theories or alleged facts. To take a somewhat analogous example, it is needless to remind the reader what a number of alleged inventions can be summarily dismissed by pointing out that they are at variance with the doctrine of the impossibility of perpetual motion.

The next chapter is devoted to the Logic of Physics, and covers more nearly the ground familiar to English readers as being occupied by the well-known treatises of Mill and Jevons. Thus it begins with a discussion upon the analysis of natural phenomena preliminary to Inductive processes, and then proceeds to give the following logical rule as a substitute for the more numerous rules of Herschel and Mill:—"Amongst the circumstances which accompany any phenomenon those are to be regarded as essential conditions upon whose removal the phenomenon itself is removed, and whose quantitative alteration produces a quantitative alteration in the phenomenon". This rule points to two experimental methods which may be briefly designated as those of Elimination, and Graduation of Conditions. A moderate criticism of Mill's well-known five methods follows, resting in great part on the ground that several of them are merely specialisations of others.

NB

After the qualitative determination of phenomena and their conditions, follows in natural order their quantitative determination, for without this little progress is attained in physical inquiry. Mill has scarcely touched at all upon this department. Some of the principal considerations to which it leads are those of the various physical adjuncts and improvements to Observation and Experiment—such for instance as microscopes, telescopes, &c., which are briefly indicated and described—but still more important, from a logical point of view, are the very intricate questions of the establishment of *units* for physical investigations. Such units are naturally divided into those of Space, of Weight or Mass, and of Time. The qualifications to be demanded of these, and the nature and extent of their mutual independence, are discussed; and it is shown how in the progress of modern science the two latter kinds of unit tend almost invariably to become dependent upon the former; as when (to take familiar instances) intervals of time are measured by the movement of the hands of a clock, or differences of weight by the position of the index of a balance.

This chapter concludes with a discussion of some of those border-questions of philosophy and physics, as to the limits *(Grenzbegriffe)* to be admitted in either direction: *viz.*, in the one direction, whether the atom or molecule is to be considered as of finite size, and in the other whether the physical universe itself is to be considered as limited. Discussions of this kind have become to some extent popularised in England through such works as the *Unseen Universe*. Prof. Wundt recognises six distinct assumptions on this topic which deserve separate discussion: *viz.*, that the hypothesis of absolute limitation may be considered to embrace time only, mass and space being unlimited; or time and mass, space alone being unlimited; or all three alike. And the same division may be made in respect of the hypothesis of absolute infinity. The discussion, in his treatment of it, involves the distinction noticed above between the merely infinite and the absolutely transfinite. He considers that Kant's statement of the Cosmological Antinomies has been vitiated by his neglect to realise the distinction in question. The whole discussion is well worth study, but I confess to feeling the same doubts here, as in the mathematical region, as to the propriety of the distinction. If one may raise an objection in a few lines on such a subject, I should suggest that in Mathematics we are dealing mainly with our own constructions and that therefore such infinity as we admit must be of the kind commonly recognised in Mathematics, meaning thereby that we can conceive our adding or diminishing without limit to the magnitudes which we contemplate. But when, as in Physics, we are dealing with what is given to us rather than constructed by us, the infinity which we contemplate must surely be of the absolute kind. An 'infinite line' is a finite one which we are to increase without limit, but 'infinite space' or an 'infinite universe' is not our making at all, and we cannot thus treat them.[1]

We now come to the Logic of the Moral Sciences. This commences with Psychology, against the ordinary traditional treatment of which Prof. Wundt has some forcible remarks: "a systematic self-observation as recommended by most psychologists is nothing but a source of self-deception". We must, he considers, in order to eliminate as much as possible the perturbing influence of the observation itself, direct attention mainly to the accidental and unexpected phenomena; whence the two following rules may be deduced:—Depend as much as possible on memory rather than on simultaneous observation; and let the introspection (or retrospection) be directed especially to the most definite and voluntary mental acts. Under such conditions as these Psychophysics forms one of our most important helps. It is defined as proposing "to produce by physical modifications or stimuli *(Einwirkungen)* changes in the states of consciousness, from which conclusions may be drawn as to the origin, combinations, and duration of psychical processes". More closely scrutinised it divides itself into the three following tasks: (1) the discovery of the relation between the elementary psychical phenomena and their physical and physiological accompaniments; (2) the analysis of composite presentations in respect of their elements and laws of production; (3) the investigation, in respect of quantity and quality, of the time-element of our presentations. The first of these subdivisions corresponds to Psychophysics in its strictest sense: the two latter cover rather the ground of Experimental Psychology. The former therefore is naturally devoted to a short account of Fechner's well-known methods and laws. A good example of the second is found in Wheatstone's discovery of his explanation of the laws of binocular vision. The last is concerned with problems of which an example may be found in the determination of the length of time required for a reaction to any stimulus, for recognising an object whether familiar or not, and so forth.

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[1] As bearing on Prof. Wundt's use of the term 'transfinite' in geometry, the following remarks may be quoted: "The point of intersection of two parallel lines has still a geometrical sense when we suppose the parallelism to be complete, and therefore the infinity of the distance to be an absolute one" (p. 375). I cannot follow this or comprehend the admission of 'transfiniteness' into geometry. If we are to talk in any other than a 'limit' sense of this point of intersection, ought we not to admit *two* such points, one in each direction, for we have no right then to say that positive and negative infinity are the same thing: and how does this differ from an assertion that two such straight lines enclose a space?

After these direct inquiries into the elementary phenomena of the normal mature mind, follows a discussion of the resources at our disposal for considering, by means of Comparative Methods, the more abnormal phenomena. This inquiry is divided into four main sections: *viz.*, the comparative examination of other intelligent creatures of a lower order (*e.g.*, the brutes as treated by Sir J. Lubbock); the psychical characteristics of infants and children; the phenomena of disturbed understandings, or those which have never been developed (*e.g.*, the insane, the idiot, and the savage); and, lastly, those finer distinctions which present themselves as characteristics of whole races, and which may be regarded as a sort of international Psychology. These four fields of inquiry are classed together under the head of Comparative Methods of Psychology. Each admits again of a further twofold division in respect of the method which is to be applied to it, *viz.*, the *individual* for the *generic* method. The individual method examines the psychical characteristics of an individual or of any such group of allied individuals as may, for purposes of study, be reckoned as a unit. This inquiry for various reasons has rather an observational than an experimental character. The generic method seeks to detach some single psychical function, or connected group of such functions, in order to test its nature and development over a wide range of observation. Both these methods have to depend in actual practice upon the same general logical operations as we have to work with when engaged in scientific observation elsewhere; *viz.*, partly on what Prof. Wundt calls the methods of Agreement and Difference, and partly on those of Combination and Separation.

The next main division to the Comparative is found in the Historico-psychological Method, which is of course nothing but an extension of the comparative method by its application to past time. The history which is thus demanded is naturally of a very special description. From the main stream of what constitutes the bulk of the science for the general student it has to select, say, the history of a word and its implied psychological interpretation; the history of a belief, of a practice, and so on. The principal special applications of this department of study which have hitherto been prosecuted to any good purpose seem to be the comparative sciences respectively known as those of Philology, Mythology and Ethics.

The second chapter is devoted to the consideration of the Logic of the Historical Sciences, and commences with a discussion as to the general position and objects of Philology and History. To this succeed Philological Hermeneutics and Criticism; the function of the former, as I understand it, being to explain the nature and conditions of any phenomenon or event in the moral world, for the present reference is of course to this only,—a process analogous to many which have to be performed in the material world: whilst Criticism is essentially confined to the process of clearing away the intermediate confusions or errors which have arisen in the process of getting at the phenomenon. We can undertake to interpret nature itself, but we can only undertake to criticise some human view or account of it, so that the applications of the two closely allied sciences are considerably different. The principles regulating the interpretation and authentication of MSS. come in for discussion at this point.

In respect of the attempted Science of History, in the sense at least in which it was contemplated by Comte and Buckle, Prof. Wundt has some forcible objections to make. The attempt of Buckle to deduce, by the merely Comparative Method, laws of historic sequence, he entirely scouts, considering that "rain follows sunshine" would be of as much scientific value as his well-known generalisations about the relatively decreasing importance of the intellectual motive factor in human life. He regards History as far too vast and varied, as well as (what is an even more important point) too unique in character at every stage, to yield itself to this comparative method: one might as well attempt, by mere comparison of remote geological epochs in the history of our planet, to deduce the laws of physical causation.

The final chapter in this part is devoted to the consideration of the Social Sciences. These are related to the Historical Sciences in that they consider the simultaneous rather than the successive states of Society; but they can, for their due explanation, no more dispense with the latter than could, for example, in the physical province, Physiology dispense with the evolutionary element. They constitute in fact what Mr. Spencer terms the Statics as contrasted with the Dynamics of the subject—(the particular analogy here suggested is however rejected as misleading). Amidst the mass of loose generalisations and confusion of departments which have gained currency under the name of Social Science, two departments at any rate may be singled out as depending upon distinct and well-justified scientific resources. The first of these is Ethnology, a science which though dealing with both the physical and moral sides of man belongs essentially to the latter, in that the physical characteristics derive all their interest and importance from their bearing on the moral. The second is at present in little more than its commencement. (The terms used for them are respectively *Ethnologie* or *Völkerkunde*, as opposed to *Demologie* or *Bevölkerungskunde*.)

Whilst the former separates man into the branches determined by descent and historic influences, but pictures each of these in every aspect of its spiritual life, the latter starts with a single determinate community in order to contemplate the isolated facts involved in it, and then to subject these to examination in respect of their mutual relations.[1] The discussion of these distinctions leads to a short account of the functions of one of the principal instruments at their disposal, *viz.*, Statistics, and the employment of this science in the Theory of Probability and for practical, legislative and other purposes.

Political Economy follows as the next of the Moral Sciences whose methods are to be discussed. Its treatment is divided into two sections, devoted respectively to the abstract view of the subject most familiar to Englishmen, of which Ricardo is the typical representative, and to the modern historical school of which something is known in our country by the writings of Cliffe Leslie, and (at second hand) of Roscher. The former of these is severely criticised, being complained of, amongst other grounds, as resting on assumptions which are far too wide of the truth to be able to claim the support, often urged on its behalf, of the analogy of Mechanics; and also as leading almost inevitably to confusion between what *is* and what it is expected *should* be.[2] With this abstract procedure is contrasted the concrete or historical one, the radical distinction between them being found in the use they respectively make of statistics: the former only appealing to them for verification and partially, the latter starting from them as the groundwork and aiming at a complete examination of all that are in any way relevant.

The work concludes with a brief criticism of the various Methods of Philosophy, the results being naturally examined, in part, in the light of the foregoing discussion of the methods of the detailed Sciences.

JOHN VENN.

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[1] Otherwise expressed—"Die unterscheidenden Eigenschaften der Völker, mit denen sich die Ethnologie beschäftigt, wie die inneren Zustände der Bevölkerungen, welche die Demologie untersucht".

[2] The prevalence of this system amongst ourselves is found to be connected with the greater egoism of the British character as compared with the broader ethical standard of the German. Such deductions from national character seem a little hazardous. If the facts had had to be explained in the reverse way, might we not have had it pointed out that the painful elaboration of historical details was connected with the incurably empirical tendency of the Briton? This would probably have been the verdict fifty years ago.

VI.—NEW BOOKS.

[*These Notes do not exclude Critical Notices later on.*]

The Metaphysics of the School. By THOMAS HARPER, S.J. Vol. III. Part i. London: Macmillan, 1884. Pp. xix., 414.

The author (whose first two Volumes were reviewed at length in MIND XXV.-VI.) has felt compelled to break up his Vol. iii. into two Parts, reserving for the second Part the Discussions on Free-will, and the Chapters on Final Cause, Exemplar Cause, &c., which conclude, according to the design, his 5th Book on "Causes of Being". The present Part is wholly occupied with the exposition of Efficient Cause; Formal Cause and Material Cause having been disposed of in the previous Volume. The treatment follows the careful and exhaustive method to which Father Harper has accustomed, and indeed introduced, the degenerate present-day readers of his previous Volumes. A feature of special interest is an Appendix (pp. 79-152), in which he brings face to face with modern science the teaching of S. Thomas concerning the efficient causes of the generation of living bodies, having already in Vol. ii. done the like for the teaching concerning the genesis of the material universe: to this Appendix and the Part generally, we hope to return in a future Number. The Discussions on Free-will, to come in the next Part, will alone occupy from three to four hundred pages, it being deemed "advisable to give due prominence to a question of such paramount importance . . . more particularly in view of the fact that the most strenuous efforts have been made by a certain class of writers to erase the idea and term [Free-will] out of our modern 'philosophy'." All genuine philosophical students must hope that the author's illness which has interfered with the completion of his present Volume (though much of the second Part is already written) will soon leave him free and in full vigour to finish not only the Volume but all that still remains of his vast undertaking.

Essays on the Philosophy of Theism. By the late WILLIAM GEORGE WARD, Ph.D., sometime Fellow of Balliol College, Oxford, and Professor of Moral Philosophy and Dogmatic Theology at Old Hall College, Ware. Reprinted from the *Dublin Review.* Edited with an Introduction by WILFRID WARD. 2 vols. London: Kegan Paul, Trench, 1884. Pp. xxviii., 390; viii., 349.

The seventeen Essays reprinted in these volumes range, in the time of their original appearance, from April 1867 to January 1882, the author's death having followed six months after the publication of the last of them. The three earliest, "Science, Prayer, Free-will and Miracles," "Explicit and Implicit Thought," "Certitude in Religious Assent," written before April 1871, but placed here towards the end of the second volume (xiv.-xvi.), give by themselves a fairly exhaustive notion of the extent and limits of his philosophical interest, also no inadequate representation of his peculiar gift of incisive argument; after these, is placed last of all (xvii.) an Essay on "The Extent of Free-will," published in July 1881, in reply to a challenge thrown out by Professor Bain in MIND XVII. and not sufficiently met when in the following No. (April 1880) Dr. Ward was willing for once to break a lance before less sympathetic spectators than the fellow-Catholics before whom he was in the habit of tilting in the *Dublin Review*. The other Essays (i.-xiii.) are the complete series of papers which he was able to produce in pursuance of a plan, formed from 1871, for the philosophical establishment of Theism more expressly against "those antitheists who profess the phenomenal philosophy". The enterprise, as his son and editor states in the vigorous Introduction to these volumes, fell into two parts, only the first of which—dealing with "the fundamental fallacies in the Experience-system of philosophy, as represented especially by the late Mr. Stuart Mill, and the absolute necessity of admitting the power of the human mind to perceive with certainty some immediately evident truths beyond the phenomena of consciousness"—he considered himself to have accomplished. The second part of his task—"to draw out, on the principles thus established, an argumentation exhibiting the various intuitions in the intellectual and moral order, truths of observation and deductions, whereby the existence of a Personal God, with the characteristics which Theists attribute to Him, may be established"—he was barely able to indicate in "Ethics and its Bearing on Theism" (1880, here xii.) and the latest Essay of all, "Philosophy of the Theistic Controversy" (1882, xiii.). Of the others, one (xi.) is a reply to the exhaustive criticism which Mr. Shadworth Hodgson made in MIND XVIII. on the various pieces (vi.-x.) which the author had been producing on the subject of Free-will and of Causation from April 1874. The first five, opening with "The Rule and Motive of Certitude" and then occupied with a consideration and more than one reconsideration of Mill's views on "Necessary Truth" and the "Foundation of Morality," are (with the latest Essays, xiii., xiv.), those of the whole series which, though their interest is now in various ways lessened, still call for more detailed notice in these pages. It is certainly matter for congratulation that work of so much intrinsic force, as well as representative importance, should, in these carefully edited volumes, have been brought into public view from the comparative seclusion in which it went on.

Logic, in Three Books of Thought, of Investigation and of Knowledge. Also *Metaphysic, in Three Books, Ontology, Cosmology and Psychology.* By HERMANN LOTZE. English Translations edited by BERNARD BOSANQUET, M.A., Fellow of University College, Oxford. Oxford: Clarendon Press, 1884. Pp. xxiii., 538; xvi., 539.

Some preliminary account was given in MIND XXXIV., 323, of the contents of these two volumes, on the appearance of which the editor and the other translators as well as the Clarendon Press are to be congratulated. The translators of the *Logic* are Mr. R. L. Nettleship, Mr. F. H. Peters, Mr. F. C. Conybeare, the Editor and Mr. R. G. Tatton; of the *Metaphysic*, the late Prof. Green, the Editor, Rev. C. A. Whittuck, and Prof. A. C. Bradley. The whole being revised by the Editor (who is responsible in every case for the rendering finally adopted), a better result has been attained by such co-operative effort than was likely to be achieved by any single hand, however competent, over so large a field. Both volumes will, it is hoped, before long be subjected to detailed criticism in these pages; the originals, in which the lamented author deposited his maturest views, having had their appearance merely chronicled—the *Metaphysik* in 1879, 2nd edition of the *Logik* (after the 1st in 1874) in 1880. Of the intended Vol. iii. that was to conclude the "System" with Practical Philosophy, Aesthetic and Philosophy of Religion, no materials were found after the author's death sufficiently advanced for publication excepting the paper subsequently published in *Nord u. Süd* (June 1882) under the title "Die Principien der Ethik".

Philosophy of the Unconscious. By EDUARD VON HARTMANN. Speculative Results according to the Inductive Method of Physical Science. Authorised Translation by WILLIAM CHATTERTON COUPLAND, M.A., B.Sc. 3 vols. London: Trübner, 1884. Pp. xxxii., 372 ; vi., 368 ; viii., 360.

A task requiring more patient and persistent effort, also more varied ability if it should be well performed, could hardly be chosen by a single worker than the rendering into another language of such a conglomerate production as the famous *Philosophie des Unbewussten.* Mr. Coupland has done his work with no common skill and, at the same time, so far as we have been able to test at different points, with remarkable fidelity to the original—though we have hit upon slips here and there of the kind that seems inseparable from the labour of translation when more than one pair of eyes are not turned upon the same text. To sustain him throughout his long labour, which has left aside not one of the many supplementary notes and seeks to do justice also to the series of prefaces begun with the seventh edition, the translator has not had any immoderate opinion of his author if we may judge by the measured words of his own short Preface. They include, however, with reason, the expression that "when criticism has done its worst, there will be enough of worth left to justify the enthusiasm the *Philosophy of the Unconscious* has evoked in the land of its birth, as also to secure it a welcome from a wide circle of new and appreciating readers". It is now sixteen years since the author, then only twenty-seven, burst upon the world with the huge outcome of his early thought, and how little he had then exhausted his productive power, the fifteen or sixteen independent works—two or three of them hardly of less size than the first—are there from the succeeding years to show. The more important of these have not been overlooked in this Journal as they appeared, and the opportunity has not been otherwise wanting to pronounce upon his "speculative results". Though sought "according to the inductive method of physical science," the *Philosophy of the Unconscious* presented them in a form not exactly suited to our insular mind ; but it is certainly well that, if they were to be made directly accessible to English readers, it should be in the fresh and genial exuberance of their first statement.

Metaphysica nova et vetusta. A Return to Dualism. By SCOTUS NOVANTICUS. London: Williams & Norgate, 1884. Pp. xi., 182.

"The synthesis (says the author) required for the perception of objects was the aim of Kant's Analytic, and he certainly was right in maintaining that such synthesis was impossible to mere Sensibility. It seems to me, however, that he was wrong in concluding that there was no possible real *content* of knowledge save in and through Sensibility (*a priori* and *a posteriori*). Not only do we know the functions of Reason as such, but (as I shall attempt to show) these functions throw into Consciousness pure percepts which are themselves real and true content of knowledge ; and which, further, are not merely regulative, but constitutive of the external. . . . My standpoint is psychological, and my metaphysic is psychological or phenomenological metaphysic. . . . On the other hand . . . I am not to be understood as holding that either scientific Psychology or Ethics is possible save as grounded in Metaphysic."

Sleep-Walking and Hypnotism. By D. HACK TUKE, M.D., LL.D., Fellow of the Royal College of Physicians, Lond. ; Co-editor of the *Journal of Mental Science.* London: CHURCHILL, 1884. Pp. vi. 120.

A paper on "Sleep-Walking" (46 pp.), read lately at a meeting of the Metropolitan Branch of the British Medical Association, is here followed by a report (10 pp.) of a "Case of Spontaneous and Induced Sleep-Walking," by another paper, read to the Medico-Psychological Association, on "The Mental Condition in Hypnotism (Artificial Somnambulism)" (44 pp.), and by a detailed description (pp. 15) of experiments with Baird's method of hypnotising which the author saw M. Charcot carry out at the Salpêtrière in 1878. His interest in artificial somnambulism as a psychological study has extended over many years; as far back as 1865 he drew attention to the important bearing of the phenomena comprised under "Braidism" upon mental affections, at a time when as yet the experiments of Braid had got little notice from medical men. At the end of the first paper is printed (pp. 47-50) a list of questions for the use of those who would help in elucidating the phenomena of Sleep-Walking.

A Text-Book of Deductive Logic, for the use of Students. By P. K. Ray, D.Sc. (Lond. and Edin.), Professor of Logic and Philosophy, Dacca College. Calcutta: Thacker, Spink; London: Thacker, 1884. Pp. xv. 335.

"The work consists of three Parts, with an Introduction and an Appendix. The first chapter of the Introduction treats, in the first place, of the definition and province of Logic, and then proceeds to the special subject of the book and lays down its scope and limits. The second chapter explains the fundamental principles of Deductive Logic. The three Parts then treat successively of Terms, Propositions and Deductive Reasoning. . . . . The Appendix is partly supplementary to the text and partly supplies additional matter to the reader. A special feature is the large number of examples given at the end of almost every chapter or important division of a chapter."

Practical Essays. By Alexander Bain, LL.D., Emeritus Professor of Logic in the University of Aberdeen. London: Longmans, Green, 1884. Pp. xvi., 338.

Of the nine Essays collected under the present title—most of them reprints—three are of distinctively psychological or philosophical character: (1) "Common Errors on the Mind," (2) "Errors of Suppressed Correlatives," (5) "Metaphysics and Debating Societies"; but also several of the others, especially (7) "The Art of Study," may be regarded as studies in applied psychology.

The Theory of Morals. By Paul Janet, Member of the Institute, Author of *Final Causes*, &c. Translated from the latest French Edition by Mary Chapman. Edinburgh: Clark, 1884. Pp. x., 495.

The author's position in this comprehensive work, which appeared in the original about ten years ago, is described by himself as "a sort of *rational eudaemonism*, opposed on the one hand to utilitarian eudaemonism and on the other to the too abstract formalism of Kant's morality, yet at the same time reconciling the two". He has "attempted to follow the method which is called conciliatory, and which is simply eclecticism, properly defined". "Kant's morality should be retained in science; but it should rest upon the morality of Aristotle, which it ought not to cast aside; and in the reconciliation of these two systems, a noble and enlightened Utilitarianism, like that of J. S. Mill, should find full satisfaction."

Études philosophiques. Par F. DURAND DESORMEAUX. 2 vols. Paris: Alcan, 1884. Pp. xi., 461; 396.

Réflexions et Pensées. Par F. DURAND DESORMEAUX. Précédées d'une Notice sur la Vie, le Caractère et les Travaux de l' Auteur, par CHARLES YRIARTE. Paris: Alcan, 1884. Pp. 125.

Fernand Durand Desormeaux died of pulmonary disease in 1881 at the age of 41. Since 1867 he had been a legal functionary in the public service of his country, and in the last year or two, before his compulsory retirement through illness was speedily followed by a premature death, he had been advanced to a position in the ministry of justice which brought within his grasp the highest prizes of political ambition. But though he had all the qualities fitting and marking him out for political distinction, his heart from youth had been given to philosophical speculation and his highest aim was always to make his mark as a thinker. During all the years of his public employment he was sedulously, even feverishly, occupied in working out into clearness and setting down his ideas in view of the comprehensive theory of knowledge and conduct which he aimed at constructing. In the years 1877-8 he procured the leisure in which he could give himself more uninterruptedly to the work, and had he not again been drawn into the political current he might, even before his early fate, have gone far to accomplishing his design. To the last, at every spare moment, his mind continued to be given to his philosophic task, and it is in pursuance of his own wish or hope that his friends M. Yriarte and M. A. Espinas (who edits the two volumes of the *Études*) have now from the mass of his papers selected what they think will best show forth the manner of man he was and the scope of his thought. M. Yriarte's personal sketch, introductory to the *Réflexions*, is excellently traced; and M. Espinas, confining himself mainly to the pieces written in the maturer years (from 1877), has with great pains and tact put together out of what seem mere fragments a fairly coherent philosophical view. Desormeaux was thoroughly imbued with the scientific spirit and in the pieces grouped together in Vol. i., under the general title of "Theory of Knowledge," is mainly concerned to re-lay the psychological basis for philosophical conclusions. In Vol. ii., "Theory of Action," he advances beyond psychological principles to moral and social applications. His psychology is throughout marked by originality and freshness of view; in particular, he has a firm hold of the import of movement for the phenomena of intellect as well as volition. Had he lived to complete his work, it might have proved of lasting value. As they are, it is impossible to dip into these fragmentary discussions, so well arranged and furnished with titles by the editor, without pausing over their suggestiveness.

Les Problèmes de l'Esthétique contemporaine. Par M. GUYAU. Paris: Alcan, 1884. Pp. viii., 260.

"L'auteur, après avoir publié un volume sur la *Morale d'Epicure* et un autre sur la *Morale anglaise contemporaine* (dont il a éte rendu compte ici même), aborde aujourd'hui l'esthétique. Partisan de l'évolution, il n'admet pourtant pas la théorie par laquelle M.M. Herbert Spencer et Grant Allen ramènent le plaisir du beau au plaisir du jeu; selon lui, le plaisir esthétique est lié directement au développement même de la vie physique et mentale et n'exclut ni le sentiment de l'utile ni le désir ni même le besoin. Le principe de l'art, selon l'auteur, est dans la *vie* même; l'art a donc le sérieux de la vie. 'L'objet de notre livre tout entier (dit-il), c'est d'établir ce caractère sérieux de l'art et de la poésie (1) das son

principe et son fond, (2) dans son développement futur, (3) dans sa forme même. Nous aurons donc à discuter l'antagonisme qu'on a voulu établir entre l'art et la démocratie, l'art et l'industrie moderne, l'art et l'esprit scientifique. Le but le plus haut de l'art, c'est, selon nous, de faire battre le cœur humain, et, le cœur étant le centre même de la vie, l'art doit se trouver mêlé à toute l'existence morale ou matérielle de l'humanité. Que restera-t-il un jour de nos diverses croyances religieuses et morales? Peu de chose peut-être. Mais, si on nous demande ce qui restera des arts, de la musique, de la peinture, et particulièrement de cet art qui réunit en lui tous les autres et qui mérite d'être étudié à part, la poésie, nous croyons qu'on peut répondre hardiment :—tout, du moins tout ce qu'il y a de meilleur, de profond, et, encore une fois, de sérieux.'"

La Liberté et le Déterminisme. Par ALFRED FOUILLÉE. Deuxième édition, entièrement refondue et très augmentée. Paris : Alcan, 1884. Pp. viii., 367.

"Ce livre, présenté comme thèse à la Sorbonne il y a dix ans, donna lieu à une discussion passionnée dans le monde philosophique et même non philosophique. C'est un des travaux qui sont considérés comme ayant marqué la rénovation de la philosophie en France depuis une quinzaine d'années. Cette seconde édition, augmentée d'un tiers et entièrement refondue, est à vrai dire un livre nouveau. C'est tout un système de philosophie que l'auteur expose, à propos d'une question dont l'intérêt est toujours actuel :—Jusqu' à quel point le déterminisme scientifique est-il conciliable avec l'idée que nous nous faisons de notre liberté? Jusqu' à quel point cette *idée même* de la liberté influe-t-elle sur nos actes? N'entre-t-elle point comme facteur original dans le déterminisme scientifique même auquel elle imprime une direction nouvelle? Telles sont les questions fondamentales que l'auteur examine. Il s'est proposé de rectifier et de transformer le *déterminisme* en y introduisant l'idée de liberté. Ce livre contient deux parties. La première est intitulée : 'Recherche d'une conciliation pratique et de ses limites. L'idée de liberté, moyen terme pratique entre le déterminisme et l'indéterminisme.' La deuxième partie est intitulée : 'Recherche d'une conciliation théorique et de ses limites.' Après un long examen du déterminisme et de l'indéterminisme sous leurs diverses formes, l'auteur entreprend la synthèse théorique des deux doctrines dans une série de chapitres dont voici les plus importants : (1) 'Force efficace de *l'idée* de liberté selon la théorie des idées-forces.' (2) 'Puissance efficace du *désir* de liberté. Liberté et sélection naturelle. Liberté et finalité immanente.' (3) 'Rôle de l'idée et du désir de liberté dans la formation de la connaissance, dans le sentiment du beau, dans l'amour d'autrui.' (4) 'Part de l'idée de liberté dans la conception de la moralité.' (5) 'Les antinomies de la responsabilité. La liberté est-elle conciliable avec le déterminisme dans la réalisation du bien et dans celle du mal?'"

Essai sur le Génie dans l'Art. Par GABRIEL SÉAILLES, Ancien Élève de l'École normale, Professeur de Philosophie au Lycée Charlemagne. (Thèse présentée à la Faculté des Lettres de Paris.) Paris : Alcan, 1883. Pp. xii., 313.

"L'auteur ne se contente pas, comme on l'a trop fait jusqu'ici, de célébrer le génie en phrases poëtiques. Il l'étudie dans ses origines et dans ses éléments. Le génie continue la vie ; il a, comme elle, et ses lois générales et sous sa forme la plus haute quelque chose d'individuel, d'imprévu, d'irréductible. Sans rien perdre de sa haute valeur et de sa singularité, le génie peut devenir ainsi l'objet d'une étude scientifique."

De l'Intelligence. Par H. TAINE, de l'Académie Française. 4me édition, corrigée et augmentée. Paris: Hachette, 1883. Pp. 419, 496.

M. Taine here preserves the form he gave to his work in the third edition (1878). The only notable additions in the body of the work, and these amounting altogether to some three pages, occur in the final Book dealing with General Knowledge. The chief of them is an interpolated sub-section (ii. pp. 376-9), which impresses the necessity of caution in interpreting the extension of the physical world according to our ideal construction of space: this sub-section now numbered viii. (turning the former viii. into ix.) is accurately indicated in the general Table of Contents at the end but not in the Summary at the head of the Chapter, p. 300. Otherwise, in the Preface, M. Taine extends by about two pages his reference (in the third edition) to the law of the conservation of energy as being a close approximation, if not an actual attainment, to the foundations of being. The law, he thinks, presupposes two conditions: (1) "Il y a dans les derniers éléments mobiles une ou plusieurs forces capables de devenir disponibles, attraction, répulsion, qui croissent à mesure que leur opposition fait décroître la force en exercise et qui la représentent tout entière sous forme de recette, après qu'elle a disparu sour forme de dépense." (2) "Il y a dans l'arrangement ou dans la nature des derniers éléments mobiles quelque particularité ou circonstance qui empêche l'équilibre universal et final de s'établir." "On peut considérer les deux conditions comme des moyens, et leur commun résultat comme un but, comme le but de la nature exprimé par une loi suprême . . . et ce but serait la persistance de l'energie à travers la rénovation des effets." One remark, in the Preface, reproduced as it stood in the edition of 1879—that somnambulism and hypnotism are waiting to be investigated by experimenters of authority and critical ability—might have been modified in view of the excellent work done in this department within the last years.

Éléments de Physiologie générale. Par W. PREYER, Professeur de physiologie à l'Université d'Jéna. Traduit de l'Allemand avec l'autorisation de l'Auteur par JULES SOURY. ('Bibliothèque de Philosophie contemporaine.') Paris: Alcan, 1884. Pp. 314.

"Ce n'est pas une physiologie générale de plus ce livre; les problèmes les plus élevés de la vie y sont présentés de la façon la plus neuve et la plus philosophique. Le même temps que les anciennes conceptions dualistes du monde et de la vie se sont évanouies des esprits, l'idée de l'unité fondamentale de tous les phénomènes naturales y a grandi; la matière n'est plus une masse inerte et inanimée; la vie devient une force naturelle qui, pas plus que les autres forces de l'univers, avec lesquelles elle se transforme, ne peut avoir commencé; la sensibilité et la pensée n'étant que des aspects de la vie sont des attributs également éternels et infinis de la substance. Le livre est aussi un manuel exact et précis des faits et des doctrines de la biologie actuelle."

Grundzüge der Æsthetik. Dictate aus den Vorlesungen von HERMANN LOTZE. Leipzig: Hirzel, 1884. Pp. 113.

Grundzüge der practischen Philosophie. Dictate, &c. 2te Auflage. Pp. 95.

The first of these pieces completes the series (eight Parts in all) of Lotze's paragraphs for dictation in lecture which Prof. E. Rehnisch began to issue in 1881. It falls into two main sections: the first dealing, in two chapters, with Beauty and Phantasy and with the Realisation and Kinds of the Beautiful; the second, in five chapters, with Music, Architecture, Sculpture, Painting, Poetry. The paragraphs are given in the form to which they had been brought in the summer-session of 1856. [We are asked to correct a misprint that has unfortunately been left at p. 64, l. 14: for *Hass* read *Hast.*] In an Appendix (pp. 74-113), Prof. Rehnisch has conveniently brought together at the end of this Part the complete collection he has made of biographical materials (some of them already published separately in earlier Parts of the series). The collection includes, besides an admirable obituary memoir written at the time for the *National-Zeitung*, Lotze's leaving-certificates from gymnasium and university, a very careful catalogue of all his literary publications (brought up to date), and a complete record of his academic courses, at Leipsic, Göttingen and Berlin, from 1839 to 1881.

The second edition of the *Grundzüge der practischen Philosophie* deserves mention, because the Editor has substituted an earlier draft (from the year 1878) for the one (of 1880) followed in the first edition. It is very instructive to note what different expression Lotze gave to his ideas at different times, expanding or contracting at particular points or otherwise modifying his dictation from year to year: every time he lectured on a subject he must have set himself anew to do his best for it. Prof. Rehnisch merits the warmest thanks for the labour undergone in preparing such varying editions,—as, we understand, he proposes to do more especially for those subjects which death prevented Lotze from treating finally in the projected Part iii. of his *System der Philosophie.* Thus the *Religionsphilosophie* will also presently appear in a varied second edition. The call for new editions of the different Parts of the series proves the hold that Lotze had gained upon his contemporaries: the *Psychologie*, first published of the series, is already about to appear in a third edition.

Ueber die Reize des Spiels. Von Dr. M. LAZARUS. Berlin: Dümmler, 1883. Pp. xvi., 177.

This psychological monograph on the attractions of Play (Games), after a discussion of the general aspects of the subject, treats successively of (1) Games of chance and intellectual games, (2) Gymnastics, (3) Spectacles (mainly artistic); and ends with a chapter of ethical appreciation. In the preface the author argues, with characteristic delicacy and force, for the possibility of psychological analysis without sacrifice of the fulness and richness of actual conscious experience. The monograph is worked out in the concrete or more popular style of which the author of *Das Leben der Seele* has already given so many effective specimens. Only one question—How the image of gain, though much rarer, prevails over the image of loss, though much more frequent, and hurries the player on to make his stake—seems to the author to involve such complex (though not doubtful) conditions that he leaves it over for special handling in a scientific journal.

Thomas Hobbes. Darstellung u. Kritik seiner philosophischen, staatsrechtlichen u. kirchenpolitischen Lehren, vom Standpunkte der modernen Weltanschauung. Von Dr. VAL. MAYER. Freiburg i. B.: Stoll u. Bader, 1884. Pp. 290.

The author of this monograph writes with a purpose—to champion the social-democratic cause of the present and future against the ultramontane-theocratic cause of the past and present, the one being connected with the advancing philosophy of "Immanence," the other with the retreating (but still vigorous) philosophy of "Transcendence". An exposition of Hobbes's views on Logic and Metaphysics, on Man and on the State (pp. 1-90) is followed, in the remainder of the volume, by a criticism (often forcible) which gives the opportunity of pointing the assertion of the author's own opinions both where Hobbes, in the boldness of his thought, makes approach to them in the 17th century and where he hangs back under the influence of his theistic conceptions. The author is content to follow the Amsterdam (1668) collected edition of the Latin works and does not pretend to throw new light on the philosopher: also, the page of biographical Introduction might have been more exact.

Einleitende Bemerkungen zu einer Untersuchung über den Wert der Naturphilosophie des Epicur. Von Dr. P. v. GIŹYCKI. (Wissenschaftliche Beilage zum Programm des städtischen Progymnasiums zu Berlin.) Berlin: Gäertner, 1884. Pp. 26.

"The author seeks to show, by reference to Hegel, Ritter and Zeller, with what animosity the philosophy of Epicurus has been judged even to the present day, and urges the necessity of leaving aside all considerations of praise or blame in the exposition of philosophical systems. If there is to be express critical appreciation, it should be kept strictly apart from the exposition; but the best way of judging of the worth of any doctrine is to give an objective account of its development and influence."

Powstanie i Rozwój Pesymizmu w Indyach. [*Origin and Development of Pessimism in India.*] By M. STRASZEWSKI, Professor of Philosophy in the University of Cracow. Cracow: Anczyca i Spólki, 1884. Pp. 101.

The author is engaged upon an extensive work dealing with the History of Philosophy in general and hopes soon to publish his first volume, devoted specially to Oriental Philosophy. Being appointed to represent his university at the recent tercentenary celebration of the founding of the University of Edinburgh, he brings the present extract from his coming volume as a complimentary offering to the Edinburgh academic authorities. The natural and social, more particularly the psychological, conditions that led to the development of Indian Pessimism, in Brahmanistic as well as Buddhistic form, are set forth at length in the light of the latest researches, and the analogies with the case of modern German Pessimism are expressly traced. Prof. Straszewski is a man of great philosophical enthusiasm and specially fitted by the breadth of his interests and acquirements to bring his Polish countrymen into contact with the general European movement of thought.

Other BOOKS, &c., received:—

M. Guthrie, *On Mr. Spencer's Data of Ethics*, London: The Modern Press, pp. 122. [See MIND XXXIII., 162.]

A Disciple of Buckle, *The New Atlantis: or Ideals Old and New*, London: Williams & Norgate, pp. 208.

A. Tebaldi, *Ragione e Pazzia*, Milano: Hoepli, pp. 220.

G. Cesca, *Storia e Dottrina del Criticismo*, Verona e Padova: Drucker e Tedeschi, pp. 260.

A. Mühry, *Kritik u. kurze Darlegung der exacten Naturphilosophie*, 5te Auflage (1882), Göttingen: Vandenhoeck u. Ruprecht, pp. 287.

W. Preyer, *Specielle Physiologie des Embryo*, 2te Lief., Leipzig: Grieben, pp. 161-320 (mit Tafeln).

VII.—MISCELLANEOUS.

Dr. G. J. Romanes sends the following :—

I should like to make a few explanations in reply to those parts of Mr. Whittaker's review, in MIND XXXIV., of my recently published work, *Mental Evolution in Animals*, which are of a critical nature.

Touching my definition of Instinct, it is enough to say that I recognise the validity of his criticism. Instead of saying that 'instinct is reflex action into which there is imported the element of consciousness,' I ought in this passage to have defined my view more closely and substituted for the word 'consciousness' the word 'perception'. But, as Mr. Whittaker virtually shows, my meaning in this matter was not left obscure; for, as he observes, "This is now explained to mean that, while 'a stimulus which evokes a reflex action is at most a sensation,' on the other hand, 'a stimulus which evokes an instinctive action is a perception'".

In Mr. Whittaker's opinion my "treatment of the fundamental question of the relation of Mind and Body can hardly be described as satisfactory". This, perhaps, is scarcely surprising, in view of the fact that I do not treat of this question at all. Originally I had written a long chapter upon it, which was intended to succeed the chapter on 'The Physical Basis of Mind'. This, however, I afterwards published as a separate essay in *The Nineteenth Century*. In that essay 'the opposition between subject and object' was stated with so much emphasis that in subsequent parts of the book I did not recur to the matter. After having withdrawn this chapter from the book, however, it might perhaps have been better if I had quoted portions of it instead of having merely referred to it in a foot-note. Nevertheless, if my reviewer had consulted the reference, I do not think he could have supposed that I experience any dimness of vision upon this topic. Still less could he have supposed that I "appear to think that the occurrence of consciousness is somehow explained if it can be shown to arise when there is an increase in the time taken up by the transmission of a stimulus". Indeed, I cannot understand how any reader of my book, even in the absence of the chapter on 'Mind and Body,' could place this interpretation upon any of its passages. I have merely stated the observable and demonstrable fact that consciousness only arises when there is a comparative delay in the essential response of a nerve-centre to a stimulus. I have nowhere insinuated that this fact serves to convey any *explanation* of the occurrence of consciousness.

The only remaining criticism which I have to notice is that which has reference to my diagrammatic representation of the probable course of mental evolution. My critic observes :—"The branching structure can only represent the division of a single mind at each of its stages into faculties, not the divergence of different types of mind. Nothing is said as to the possibility that at the same level of general intelligence there may be essentially different mental types—dependent, for example, on different degrees of acuteness of the senses, and different ratios of their degrees of acuteness to one another. . . . The evolution of existing types of animal intelligence, as well as existing types of animal organisation, ought to be shown by a genealogical tree." Now, I do not dispute that it would be desirable to form such a genealogical tree of existing types of animal intelligence, if the formation of such a tree were in the nature of the case possible. But I do not consider that in the nature of the case this is possible. Our means of investigation in comparative psychology being necessarily indirect or 'ejective,' we can never aim at any such precise classification of animal minds as we can of animal bodies. The most that we can ever hope to achieve is to indicate in the zoological scale where this or that faculty of mind first gives definite evidence of its appearance. And this is all that I have attempted to achieve.

I regret that Mr. Whittaker has not alluded to my views on the origin of Memory as precedent to the association of ideas, and on the origin of Reason in the unconscious inferences of perception. I regret this because I had looked forward to the review of my book in MIND as the one which would probably have discussed these views.

The Croonian Lectures were delivered in March of this year, at the Royal College of Physicians, by Dr. J. Hughlings Jackson, who chose for his subject the "Evolution and Dissolution of the Nervous System," and gave what may be regarded as a highly-condensed summary of the results of the work that has occupied him for many years. At frequent intervals Dr. Jackson has published, in somewhat fragmentary form, the results that he has arrived at in localised districts of his field of work; but these publications have been distributed over so long a period and disseminated in so many journals that they are not readily available for reference. These lectures are therefore welcome as a recapitulation in an accessible form of much that has appeared before; as giving the latest outcome of Dr. Jackson's labours; and as presenting his views in a more unified or, as he might himself term it, integrated form than they have yet assumed. Dr. Jackson regards the central nervous system as a hierarchy; in which each grade controls the grade below and is controlled by the grade above; each grade represents over again and co-ordinates in more elaborate combinations the parts represented and co-ordinated by the grade below; and every part or region or centre of a grade represents a larger share of the organism than any corresponding part of the grade below, a more limited share than any corresponding part of the grade above. Thus each centre in the lowest grade represents but a limited portion of the organism, and each centre in the highest grade represents the whole of the organism, but in no two of these latter centres is the whole organism represented in quite the same way. The whole of the grades are grouped in three main divisions—lowest, middle, and highest centres. Of these the lowest are the most completely organised, the highest the least completely organised. When disease attacks the nervous system there are always two sets of manifestations: negative and positive—loss of function and excess of function. The functions lost are those of the centres diseased. The functions that are excessive are those of healthy centres subordinate to the centres diseased, and permitted to act excessively by the removal of the control normally exercised by the centres now diseased. The centre whose function is abolished may belong to the lowest, to the middle, or to the highest division, affording examples of local dissolution. On the other hand there may be a uniform dissolution, the whole of the highest grade of all being first lost, and successive grades being pared off as it were, as if in layers. Dr. Jackson applies these doctrines, with many subsidiary hypotheses, to every kind of nervous disorder, from atrophy of muscles to insanity, and from giddiness to coma; and from his vast knowledge of diseases of the nervous system he is able to supply an apparently limitless profusion of instances to every section and subsection of his subject. A more extended account of these important lectures is reserved to a future occasion. [C. M.]

At the meeting of the Aristotelian Society on March 17th, the study of Hume's *Treatise of Human Nature* was continued by a paper on Book i., Part 4, "Of the Sceptical and Other Systems of Philosophy," by Mr. W. R. Browne; on March 31st, by a paper on Book ii., Part 1, "Of Pride and Humility," and Part 2, "Of Love and Hatred," by Mr. W. E. Beeton; on April 21st, by a paper on Book ii., Part 3, "Of the Will and direct Passions," and Book iii., Part 1, "Of Virtue and Vice in general," by Mr. P. Daphne; and concluded on May 19th, by a paper on Book iii., Part 2, "Of Justice and Injustice," and Part 3, "Of the other Virtues and Vices," by Mr. G. Cave. The papers were in every instance followed by a discussion. On May 19th, Professor Bain, who was present, made some interesting observations on Hume's relation to Utilitarianism, as well as on the relation of the speculative part of Hume'e own system to the practical part. On one of the two meetings devoted to original communications, May 5th, a paper was read by Mr. W. R. Dunstan, Vice-president, on "An Analysis of Force," and on June 9th, Mr. E. Hawksley Rhodes, Vice-president, completed the subject of Hume by a paper on "Hume's position in the English School of Philosophy"; both papers being followed by a discussion.

The English Translation of Lotze's *Mikrokosmus*, begun by the late Miss Elizabeth Hamilton (daughter of Sir W. Hamilton) and completed by Miss E. E. Constance Jones (of Girton College), who has also revised Miss Hamilton's part of the work, is now being printed, and will be published by Messrs. T. & T. Clark of Edinburgh. It may here be added, with reference to the English translation of Lotze's *Metaphysik* noticed on a former page, that a French translation of the same work has also lately appeared, published by Firmin-Didot at the cost of the translator Mons. A. Duval, now of Montpelier. Prof. Rehnisch, noticing M. Duval's work in the *Göttinger Gelehrte Anzeigen* (No. 10, 1884), mentions that Lotze himself revised it, and that it has consequently been found useful in clearing up difficulties at particular points of the newly issued second edition of the German original. M. Duval has also ready a translation of the *Mikrokosmus*, executed at Göttingen under the author's eye while Lotze was still there, cannot find a publisher willing to undertake the cost of production.

The Rev. Dr. John Gibson Macvicar, author of *An Inquiry into Human Nature* (1852), *The Philosophy of the Beautiful* (1855, first published in a less developed form, in 1837, with the title *On the Beautiful, the Picturesque, and the Sublime), A Sketch of a Philosophy* (1868), and contributor of an article on "The so-called Antinomy of Reason" to MIND VI., died on the 12th February at Moffat, N.B., where he had been parish-minister since 1853. He was born at Dundee on 16th March, 1800.

Dr. G. Stanley Hall, who has for some time been Lecturer (not Professor, as formerly stated in MIND) at the Johns Hopkins University, Baltimore, has now been appointed full Professor of Psychology and Pedagogy (the latter subject being understood as Applied Psychology and Ethics). He is to have several Assistants in his work, and his own lecturing will be confined to graduates. With its Psycho-physical Laboratory, which has begun already to yield results, as our readers have seen in No. XXXIII., and from which more may be soon expected, the Johns Hopkins is now as well fitted out for scientific work on mind as perhaps even the most advanced German university. In this country, almost the first beginning towards such an academic equipment has yet to be made.

Dr. J. G. Schurman, who has hitherto professed English Literature with Metaphysics in Dalhousie College, Halifax, N.S., has now been appointed to a newly-founded separate chair of Metaphysics there.

Professor Benno Erdmann has passed from Kiel to Breslau; Drs. A. Krohn and G. Glogau, *extraordinarii* at Halle, have become ordinary Professors at Kiel; and Dr. H. Vaihinger, from the extraordinary grade at Strasburg, has risen to the higher grade at Halle.

The Journal of Speculative Philosophy.—Vol. XVII. No. 4. W. T. Harris—Philosophy in Outline (ii.). Trentowski—On the Sources and Faculties of Cognition (trans.). D. J. Snider—A Study of the *Iliad.* G. Garrigues—Goethe's *Das Mährchen.* F. B. Sanborn—The Puritanic Philosophy and Jonathan Edwards. R. G. Hazard—Man's Freedom in his Moral Nature. Notes and Discussions, &c.

Revue Philosophique.—IXme Année, No. 4. B. Perez—La logique de l'enfant (de trois à sept ans). A. Binet—L'hallucination. i. Recherches théoriques. J. Andrade—De l'abus du principe de la conservation de la force. Rev. générale (P. Tannery—Théorie de la connaissance mathématique: Cohen, Du Bois-Reymond, Kroman). Analyses et Comptes-rendus (H. Maudsley, *Body and Will*, &c.). Rev. des Période. Varietés (Ch. Richet—De la suggestion dans le rêve). No. 5. A. Binet—L'hallucination. ii. Recherches expérimentales. L. Manouvrier—La fonction psycho-motrice (i). F. Paulhan—La morale idéale. Analyses, &c. Notices bibliographiques. Rev. des Périod. Correspondance (A. Stöhr). No. 6. Ch. Féré—Des troubles de l'usage des signes. G. Tarde—Darwinisme naturel et Darwinisme social. L. Manouvrier—La fonction psycho-motrice (fin). Analyses, &c. Rev. des Périod.

La Critique Philosophique.—XIIIme Année, Nos. 1-21. C. Renouvier—La doctrine de l'immortalité conditionelle (1, 4); J. J. Rousseau jugé par les Genevois d'aujourd'hui (7); Le caractère de Rousseau (10); Les crises morales de Rousseau (11); Les labyrinthes de la metaphysique (13, 16, 19, 21). F. Pillon—*La Philosophie positive* (1); A propos de la notion de nombre (5, 6); *L'Utilitarisme*, par J. S. Mill (17). A. Schloesing—Des bases de l'éducation religieuse (2). L. Dauriac—Déterminisme et prédéterminisme (3); Les deux morales: La morale évolutionniste et la morale traditionelle (8).

La Filosofia delle Scuole Italiane.—Vol. XXIX., Disp. 1. P. Ragnisco—La teleologia nella filosofia greca. T. Mamiani—La morale di Socrate. T. M.—Testamento di un metafisico (ii.). T. Ronconi—Lettera a T. Mamiani intorno allo studio della filosofia in Londra (i.). A. Chiappelli—Sopra l'elegia di Aristotele ad Eudemo. Bibliografia, &c. Disp. 2. P. Ragnisco—La teleologia nella filosofia moderna. A. Macchia—Lettera quarta ad uno studente di Università. T. Mamiani—Della imputabilità umana. T. Ronconi—Lettera a T. M. intorno, &c (ii.). T. M.—Testamento, &c. (iii.). P. D'Ercole—Un manoscritto inedito di E. Kant. C. Cantoni—Werner, *Kant in Italien.* L. Ferri—Il Platonismo di Marsilio Ficino. Bibliografia, &c.

Zeitschrift für Völkerpsychologie u. Sprachwissenschaft.—Bd. XV., Heft 1, 2. M. Holzmann—Sünde u. Sühne in den Rigvedahymnen u. den Psalmem. G. Simmel—Dantes Psychologie (i.). E. Wohlwill—Die Entdeckung des Beharrungsgesetzes (ii.). Guggenheim—Zur Composition der platonischen *Republik* in ihrem Verhältnisse zur Entwicklung der platonischen Ethik. Beurteilungen (C. Abel, *Ilchester Lectures on Comparative Lexicography*, &c.). G. Vogrinz—Ueber die Casustheorie.

Philosophische Monatshefte.—Bd. XX., Heft 4, 5. C. Schaarschmidt—Zur Widerlegung des Determinismus. J. Nathan—Vorstellen, Fühlen, Wollen. E. König—Einige Gedanken für Kant's Aesthetik gegen Empirismus u. Realismus. Recensionen, &c. (J. Martineau—*A Study of Spinoza*, &c.) Literaturbericht. Bibliographie, &c.

Vierteljahrsschrift für wissenschaftliche Philosophie.—Bd. VIII., Heft 2. W. Schuppe—Zum Eudämonismus. A. Marty—Ueber subjectlose Sätze u. das Verhältniss der Grammatik zu Logik u. Psychologie (ii.). G. Heymans—Zurechnung u. Vergeltung. Eine psychologisch-ethische Untersuchung (iii.). Anzeigen. Selbstanzeigen. &c.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—THE PROBLEMS OF HYPNOTISM.

By Edmund Gurney.

Of all physical analogies, the one which most constantly suggests itself outside the limits of the physical universe is that of the pendulum. Alike in our sensory experience where excitement leads on to fatigue and satiety begets aversion, and in the wider domains of religion and politics where movements and opinions so constantly tend to one extreme by a mere impetus of repulsion from the other, the rhythmic law of action and reaction is ever at work. But sensation and sentiment by no means exhaust the region to which these further applications of the law extend: we find it operating where it would least be sought, and invading the passionless paths of science herself. The characteristic instinct of the scientific spirit is, of course, to simplify and unify: as science advances, theories of a multitude of separate agents, whether personal deities or abstract faculties, gradually give way to the recognition of large general laws. But if in the main this tendency towards unity and simplification brings nothing but good, it is inevitable that an end in itself so eminently conducive to intellectual peace and satisfaction should also act as a temptation—that in yielding to the generalising instinct the mind should sometimes be swayed too fast and too far, and so be landed in premature hypotheses. And thus it is that, even as the old pre-scientific speculation sought a transcendental unity of things in such principles as water or fire, so even advanced science may occasionally do injustice to the immense variety of Nature, and, in the determination to formulate a law for some special department of facts, may seek and observe too exclusively the facts which can be made to square with the law. It would be hard to find a better instance of such over-simplification than is afforded by the modern science of Hypnotism. For so short a span of existence, few sciences can have been so prolific in theories, presented often concurrently, and with little attempt at mutual refutation; and the time has perhaps come when the experimental knowledge of the subject which is so rapidly advancing may be usefully supplemented by a brief critical review of its theoretic vicissitudes. If such a review reveals how divergent have been the various paths which speculation has taken, and how one after another of them seems to leave this or that set of facts on one side, it may at least aid in defining the problems that actually remain.

The facts of Hypnotism, it is needless to say, first became prominent in connexion with theories which science has with one voice rejected, finding nothing therein but absurd personal pretensions, and an ignorant jargon about forces and fluids. The facts themselves, however, were too indisputable and extraordinary to be neglected; and the first and most comprehensive theory of them, advanced in opposition to those of 'mesmeric' influence and 'odic' emanations, was that of *suggestion* and *imagination.* The singular mental phenomena which followed 'mesmeric' manipulations were ascribed to a temporary suspension of the 'subject's' independent powers of will and judgment, whereby both his beliefs and his conduct were left at the mercy of external suggestions. This was the theory crudely set forth exactly a century ago by the Commission of the French Academy of Sciences which was appointed to examine Mesmer's claims. Though presumably regarded by them as an explanation, it clearly contains no explanatory power whatever: it is simply a description (and, as we shall see later, a very imperfect one) of the particular mental condition which the 'subject's' actions suggest. The crucial question remains: If the doctrine of a specific influence from the operator be rejected as outside the domain of natural law, what are the natural laws to which this peculiar mental condition can be referred? Above all, what is the law of its production?

This question remained for a long time without an answer; but two answers were at last given by countrymen of our own—one, which as far as it went was of a clear and definite character, by Braid; the other, of a hazy and unexplanatory character, by Dr. Carpenter. This description may at first sight seem unjust to the latter, inasmuch as he professes general agreement with Braid, and does not seem aware of having adopted a different basis. It will not be hard, however, to justify what has been said.

Dr. Carpenter's explanation (*Mental Physiology*, c. xiv.) rests purely on *mental* ground: his argument is concerned with states which (though of course, like other mental states, they have their physical correlate in the nervous system) he treats throughout in their purely mental aspect. There could be no objection to this treatment, were it successful as far as it goes—the conditions of success obviously being that the phenomena of the mental state for which we seek explanation should be brought into relation with phenomena of other and more familiar mental states; for scientific explanation consists in bringing out identities between new and old knowledge. Dr. Carpenter's failure to realise this condition seems to me to be complete. The region where he seeks the needed identities is the well-recognised one of *reverie* and *abstraction;* and his endeavour is to embrace the phenomena of these familiar states with those of Hypnotism in the common category of 'automatic mental action'. As an instance of the automatism of reverie, he describes the loose play of fancy to which the poet may resign himself under the influence of some pleasing aspect of Nature. To illustrate the automatism of abstraction, he describes the 'absence of mind' which has characterised many clear and profound thinkers,—showing itself in their eccentric conduct in the streets, or in random answers to persons who have addressed them when their whole attention was absorbed in following some complicated train of logical thought. The reader will observe, even before we begin to test the resemblance of these 'explanatory' phenomena to the unexplained facts of Hypnotism, how confused and confusing the idea of automatism has already become. It is more than doubtful, to begin with, whether 'automatism' correctly describes the poet's condition at all. As long as the idea of *will* is absent, 'automatic' is an excellent word to describe actions, the conditions of which are inside and not outside the subject of them: such, for instance, is its appropriate meaning in physiology. But the mind is not a cell or a tissue; and, in the present connexion, to call the mind's actions automatic, simply because it is taking its own path unsolicited from moment to moment by new sensory impressions, seems very misleading. 'Automatism,' if it is to serve Dr. Carpenter's purpose and to embrace hypnotic facts, must mean something quite distinct from spontaneous and unsolicited origination of ideas; it must mean nothing less than temporary paralysis of the directive power of the will; and there is nothing to warrant the assumption of this paralysis in the fact that the mind's action for the moment is unimpeded and effortless.

But even if we waive this objection and extend the meaning of 'automatism' to cover what is properly expressed by *spontaneity*, the automatism in the described condition of the poet and that displayed by the absent-minded mathematician are surely so far from identity that they present an absolute contrast. The spontaneity or 'automatism' of the poetic day-dreamer, in the sense of a free and aimless play of mind, belongs to the essence of his activity; so far as it is a correct description at all, it is a description covering the whole ground of what his mind is doing. The mathematician's mental activity, on the other hand, is just exactly *not* free and aimless, and just exactly *not* automatic. It is the most conscious and strenuously-directed effort, concentrated on successive points in an argument which it may require all the strength of his will to stick to and grapple with; and any automatism that he may display is a mere *accident* of this state, showing itself if external demands happen to solicit an attention which is already irresistibly set in one particular channel. The condition described as 'automatic' in the case of the poet is charged with consciousness, which may be of the most vital and delightful kind; it *is*, in fact, itself the stream of consciousness in a particular aspect—*i.e.*, winding hither and thither in a roving and easy way. The automatism of the mathematician who does or says odd things while solving a problem, is essentially remote from the stream of his consciousness; *that* is engrossed with other things, and his automatic sayings and doings are distinctly reflex actions, the result of suggestions which may never reach even the threshold of conscious perception.

Having thus observed the total dissimilarity, or rather opposition, of the two mental states whose fundamental characteristics Dr. Carpenter treats as identical, we shall not be much surprised to find that the hypnotic state, which he goes on to identify with them—in order by that means to obtain an expression for the less known in terms of the better known—is essentially distinct from either. The looseness of thought which has already made 'automatism' cover two quite distinct things very easily extends it to a third equally distinct thing, which, being thus referred to a class, is so far—and all by the magic of a word—explained! The automatism of the hypnotised 'subject,' in his response to external suggestions, is often automatism in a true sense; in that respect differing *toto cœlo* from those spontaneous or internally-originated impulses of fancy to which, in moments of random reverie, the poet's mind may give the rein. But it differs no less distinctly from the automatic or reflex words or actions with which we saw the absorbed mathematician responding to external impulses. For of those responses, as we observed, the essence was that they were unattended to, the stream of consciousness being rapt away in another direction; while in the hypnotic case, consciousness and attention,[1] so far from being abstracted from the things which are being done in response to the external suggestion, are directed with even abnormal concentration upon those very things. We might without incorrectness describe the higher hypnotic phenomena as *reflex* action, in respect of the certainty with which particular movements follow on particular stimuli; but they are, and their peculiarity consists in their being, *conscious* reflex action. The central problem of Hypnotism lies in the combination of those two adjectives; and in the following pages each of them will have to be emphasised in turn. The hypnotised 'subject' who carries out complicated orders is a conscious, and often even a reckoning and planning, automaton. Reflex response (if we wish to retain the phrase) is here raised from the merely physical to the mental plane; the external suggestion evokes a particular idea in as certain and as isolated a way as an appropriate electrical stimulus evokes the isolated action of one particular muscle. This isolation of a single object in the mind naturally implies abeyance of the normal controlling and relating power. In the normal state, successive vivid points of consciousness are surrounded by a swarm of subordinate perceptions and ideas, by reference to which it is that conduct is instinctively or subconsciously kept rational, even though the attention may be strongly focussed on its immediate aim or object. In the hypnotic state the contact is broken between the predominant idea and this attendant swarm; and conduct thus ceases to have reference to anything except the predominant idea. And the difference between that isolation of the dominating idea which is the cause of automatic answers and actions in the case of the absorbed mathematician, and the isolation of the dominating idea in the hypnotic automaton — though to a superficial observer the states seem similar just because each produces irrational actions—clearly goes to the very root of the phenomenon, regarded as mental. The mathematician has no fraction of attention to spare for external solicitations: his mind is in a state peculiarly impregnable to them; the mind of the hypnotic 'subject' is absolutely at their mercy. The one mind is working with unusual force and individuality in its self-elected channel, and what its owner says or does in response to external influence is as little attended to by him as the influence itself. The other mind is working with marked absence of individuality in a channel elected by others, and what its owner says or does in response to external influence is that on which his attention is concentrated to the complete exclusion of every other thought.

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[1] Consciousness and attention, that is, so far as they are present. The very varying degrees, and in many cases the indisputably high degree, in which they may be present will be discussed a little later.

The attempted explanation of the phenomena on *mental* ground, by bringing the mental condition within the recognised domain of abstraction or automatism, thus falls to pieces. Braid's explanation was a very different one. He fearlessly took *physical* ground, and attributed the hypnotic effects to an exceptional and profound nervous change produced by a particular muscular straining. His experiments and conclusions, which were the foundations of the actual science of Hypnotism, are too well known to need recapitulation. They dealt, it is true, chiefly with the lower phenomena—the obvious bodily effects, and Braid's grasp of the subject on the psychical side was certainly very imperfect; still his claims to have traced to their true source effects which had hitherto been ascribed to imagination and imitation are sufficiently explicit to pass as a suggestion, at any rate, of a physiological basis for the higher phenomena with which we are here chiefly concerned. Since his time, the principal gain to our knowledge has been the proof that it is not necessary that the eye should be the organ employed, or even that the strain should be of a muscular sort at all. With sensitive 'subjects,' the ticking of a watch held at the ear, and light monotonous passes acting on the nerves of touch, have been found as effective as the fixed gaze. But this, it will be observed, is a mere extension of Braid's doctrine; for the physiological condition of preparatory nervous adjustment to a regularly-recurring stimulus is really *fixation* in as true a sense as where the employment of muscular apparatus more immediately suggests the word. Concentration of attention is, no doubt, the natural mental concomitant of the physical fixation ; it may even be that for the artificial production of the state in man it is a real condition, in the sense that physical fixation alone would not be effective if the attention were kept actively employed on external topics. But Braid never for a moment suggested that the peculiar muscular or nervous strain could in the first instance be dispensed with, or was anything less than the full and sufficient cause of the subsequent phenomena. He is throughout consistent and urgent in his view that the basis of hypnotism is a complete alteration or rebalancing of the nervous system, artificially producible by special means of an obviously physical sort.

Here, then, we seem to have at any rate the beginning of a satisfactory account of many of the facts popularly attributed to 'mesmeric' influence. Braid clearly saw—what Dr. Carpenter has failed to see—that the hypnotic state is a unique one and is due to a quite special cause. If the fact is experimentally established that a particular sort of physical process is perpetually followed by an exceptional mental state having no apparent relation to it, the hypothesis of an exceptional nervous change—as a middle term, and as the proximate condition of the mental state—is one which, in the present stage of our knowledge as to the connexion between mind and nerve-tissue, we not only may but must make. And so far as the mental change is profound and the mental state unique, to that extent, we are justified in saying, is the nervous change profound and the nervous state unique. Even to enunciate this doctrine may appear somewhat out of date, now that science is attempting to define, what Braid left uncertain, the exact nature of the nervous events—whether, for instance, they consist in 'cortical inhibition' or in 'local erethism'. But there is a special reason for constantly insisting on the more general position. For Dr. Carpenter's is by no means the only attempt that has been made to frame an explanation of hypnotic phenomena out of psychical factors ; and such factors have proved themselves peculiarly liable to illegitimate use. Above all, they have tended to confuse the important distinction between the production of the state and the state itself—a distinction which Braid's conception enables us to keep clear.

The psychic factor mainly relied on has of course been that of *attention*. And there are doubtless cases where such reliance might seem justified—cases where the physical means which are successful in producing hypnotism seem much less exceptional and violent than those described by Braid, and where, therefore, the accompanying psychical element of concentrated attention becomes relatively more conspicuous. Even these cases, however, include none where physical means have been altogether absent: we have no record of the production by attention, however concentrated, of the characteristic phenomena of suspension of directive power and loss of memory, unless accompanied by some amount of physical fixation.[1] And indeed the very nature of the concentration, when present, seems to involve some such fixation: it would probably be impossible where the bodily state was wholly pliant and natural. In its strained immobility it is itself exceptional—so much so that an educated mind may find the greatest difficulty in attaining to it—and is, in fact, the very opposite of the active sort of attention with which an object is normally contemplated or a train of thought followed. Nor can attention be represented even as an inseparable accompaniment in the production of the state, unless by resolutely ignoring a large part of the hypnotic field. As Mr. Romanes some time ago observed, and as Prof. Stanley Hall again pointed out in his most interesting and suggestive paper in MIND XXX., it is easy to hypnotise animals, but not easy to credit such an animal as a frog or a crayfish with any true power of mental concentration. And the phenomena of natural somnambulism or 'sleep-waking,' which in respect of the absorption of the mind in one direction present the closest analogy to those of hypnotism, demand no previous concentration of attention at all. But even if we confine ourselves to cases where attention *is* actually present during the production of the state, what ground is there for describing it as the *cause* of that state, in the absence of any extraneous empirical proof of a tendency in the antecedent to produce the consequent? The general effects of a one-sided strain of mind or body are pretty well known; and 'tonic cramp of the attention' (to adopt Prof. Stanley

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[1] This of course does not apply to the production of the state in sensitive 'subjects' who have been hypnotised on previous occasions, and who fall into the trance by attention, not to a button, but to their own memories of past sensations. The power of representing and revivifying past states is one which manifests itself in many directions, and has no special relation to the hypnotic problems.

Hall's phrase) may be a very satisfactory description of the one-sided absorption in a particular direction which characterises many isolated stages of the hypnotic trance. But what tendency should the cramp of an attention which is directed to a button held in the hand have to produce, or to facilitate, a fresh cramp or series of cramps when the attention is diverted to quite fresh objects? The cramp of a limb which has been kept too long in one position does not issue in a tendency to move it rapidly into new positions: yet it is just such an anomaly as this that the hypnotic process and its sequel perpetually present. Prof. Stanley Hall's excellent remarks—*à propos* of the idea of attention—on the danger of using terms in a manner which necessitates 'radically reconstructing the notion of them familiar to common consciousness,' would surely be equally in place here *à propos* of cramp. Even the case which he himself describes—where powerful excitement, both physical and psychical, was produced by the effort to change the current of the 'subject's' ideas, and where it was necessary to wake and re-hypnotise him before impressions of a new *genus* could be given—presented a feature which seems an odd result of previous rigid attention to a button, namely, 'great mobility of attention' within the single genus of ideas suggested. But this necessity for waking and re-hypnotising is so far from being constant that in my experience it is unexampled. I have again and again found the complete change to a new *genus* of ideas to be absolutely effortless and instantaneous—found, that is, that the attention, which had been as usual fixed during the *process* of hypnotisation, became quite abnormally mobile afterwards. Thus—to give one example out of many—a youth well-known to me, with whom I have made many experiments, was told by the operator, before the proceedings began, that when hypnotised he was to recognise and converse with me. He was then hypnotised by fixation in the usual way; after which he talked to me for a minute quite naturally. Then, with a single sentence, he was taken from my room to a church-yard, and was set to work at trimming a grave, where the grass had grown too long. He put great energy and humour into his task, and he now regarded me as a stranger who wanted to interfere with and rob him of his job. Another word from the operator, and he was in a boat in a storm, running up an anti-macassar for a sail, and lashing his companion to the mast for safety, his comments throughout being extremely vivid and amusing. Another word, and he was engrossed in watching a conjuror spinning plates in the Brighton Aquarium; he indulged in very free criticism, and, while greatly admiring, opined that the plates were loaded and the table made to slope inwards. I now got the operator to introduce me to him, and to place my hand in his, and by this means I obtained sufficient hold on him to make him half believe that he was in church; but he was puzzled by the continuation of the plate-spinning, and at last he compromised his beliefs by saying that, though he would consent to sit in church, he must insist on watching the conjuror. A word from the operator obliterated the latter impression, and brought him wholly to church, where he pointed out various objects and, without the slightest suggestion, began mimicking the manner of a local preacher. I now again addressed him, and he again disowned acquaintance with me, though curiously he regarded me as the same stranger who had interfered with him before. Another word, and he was at home helping his mother with accounts, and did a sum which I gave him on paper correctly and with rapidity.[1] Here then the order of mental events, in the whole experiment, was unusual rigidity followed by unusual mobility. But how can we pretend that we *account for* the latter by recognising the former? So long as we keep to physical ground, it will be observed, no such difficulty occurs. If Braid had been asked how it is that fixation of particular muscles or nerves reacts on the higher nervous centres in so remarkable a manner, he might have fairly replied that physiology abounds in puzzles no less special and insoluble. But if I am told that a particular mental attitude—that of fixed or one-sided attention—is the *cause* of certain mental phenomena which are new to me, I am surely justified in demanding that the order of events shall present some perceptible coherence—shall at least not run directly counter to what my general experience would have led me to expect. Such an objection might be pedantic—as against writers who of course have no thought of differing from Braid, or of denying the physical correlative of the attentive attitude—were it not that in their advocacy of attention they have curiously disregarded the *facts,* such as those just recorded, where this want of coherence is evident. The oracular simplicity of Bürger's formula, that the cause of hypnotic phenomena is essentially psychic, would hardly retain its impressiveness in face of hypnotic phenomena which in psychic character are at the precisely opposite pole from their antecedent.

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[1] It may be asked what guarantee can be had, in such cases as the above, that the 'subject' is not acting a part in a condition of normal wakefulness. The test of pain cannot well be immediately applied, as in the alert stage of hypnotism there is rarely a marked diminution of sensibility. But the sensibility test can nevertheless be effectively brought to bear; for, if left alone at the close of such manifestations as the above, the 'subject' will fall, usually with great rapidity, into the deeper stage of trance, in which any amount of such minor torments as pin-sticking and pinching may be applied without arousing him, or his conjunctiva may be touched without evoking more than a feeble reflex response. This is a state into which it cannot be maintained that robust youths are wont to pass at will out of a condition of normal wakefulness. Another test, which I have repeatedly applied, is to inform the 'subject,' on his complete waking, that he has apparently been dreaming of taking part in various scenes, and to offer him £20 if he will say what the scenes were. It will still, perhaps, be objected that though truly in a hypnotic condition and unable subsequently to recollect what has passed, the 'subject' may still at the time be only pretending to be a party to the scenes suggested. This supposition however is in conflict with all the evidence of every sort as to the conduct of hypnotised 'subjects,' and with every theory hitherto propounded; while, even if true, it would leave the fact of the mobility of the attention just where it was.

But this objection has yet another side. Suppose we were told that the final result of cramping a limb or a psychic faculty was *paralysis,* where should we expect to find the paralysis? Surely in that limb, or in that faculty. And in the case of the *lower* hypnotic phenomena, what happens to the faculty of attention may doubtless be regarded in this light. Thus if a favourable 'subject' be allowed to stare at a button undisturbed, he will soon pass beyond the 'alert stage,' when his imagination and his body might be brought into activity by suggestions, and will simply become torpid and indifferent, though still often capable for some time of rational conversation; the cramped condition of his attention has not resulted in continued and absorbing attention to the button, but in gradual paralysis of the whole perceptive function. We have just observed how different is the case with the attention, if the 'subject' be taken in hand and suitably treated for the higher phenomena before this deep state has supervened; but the further point to be now noted about such phenomena is this—that while in them the *attention* is so little paralysed that it is even found to be abnormally mobile after a period of fixation on the button, *other* functions—those namely of choice, and will, and reaction in the way of attraction and repulsion—*are* paralysed. The effect on these reactions admits (as we shall see) of various degrees, but there can be no doubt as to its reality. In psychical terms, then, cramp of the *perceptive* has led to paralysis of the *appetitive* faculty—a fact which it would surely need a very enthusiastic psychicist to regard as self-explanatory.

It may be worth while here to note what I think has been a main reason (though a very illogical one) for the tendency to regard previous fixity of attention as in itself a sufficient ground for the unhinged automatic mental condition of hypnotised 'subjects'. It is that certain *physical* phenomena, which may at first sight seem more startling (but are in reality far less unique) than the mental condition in question, have undoubtedly been known to follow or to accompany the state of fixed or expectant attention—that attention, however, being then always directed to the part of the body in which the phenomena were actually to appear; as in the familiar case where the steady contemplation of a particular finger leads to a sense of tingling in it. But even in this direction, where the mere attitude of attention and expectancy does actually seem of distinct efficiency, cases occur where the physical change cannot possibly be ascribed to that attitude, inasmuch as not even the vaguest realisation of the bodily part to be affected was in the patient's mind. Such a case is that of a woman who had been hypnotised by Braid for relief of violent pain in the arm and shoulder, and who found, much to his and her own surprise, that an opacity which had been left by rheumatic fever over more than half the cornea of her left eye was gradually clearing. This case has been most unaccountably quoted by Dr. Carpenter as an instance of the curative effects of mere attention. The result seems clearly attributable to that re-balancing or re-direction of nervous energy which Braid regards as characteristic of the hypnotic state—to those nervous events which are no mere correlate of an act of attention, but the result (as he explains) of a quite special physical cause.

But the objections to the attention-theory are not by any means exhausted by the difficulty of connecting the *process* with the *results* of hypnotisation: on the contrary, they become even more substantial if we confine ourselves to the latter. And they deserve note the more just because the theory here will actually cover so much ground—because so many of the hypnotic phenomena may be truly described as belonging to the 'pathology of the attention,' and admit of interesting treatment (*e.g.*, in G. H. Schneider's treatise, *Die psychologische Ursache der hypnotischen Erscheinungen*) in connexion with other branches of that wider subject. But in the first place, even in the alert stage of hypnotism, where mono-ideism with its accompanying loss of balance and control is often most conspicuous, it must always be borne in mind that this is not the essential peculiarity of the state. The fundamental fact according to our formula is not that the psychic activities are abnormal, but that they are *reflex ;* it is not the mere subjection of the mind to a single idea or set of ideas, but the certain production and alteration of that condition *ab extra*. In the second place, results are often loosely set down to the 'dominance of an idea,' where, if we enquire what the particular idea is, we fail to find it. A hypnotised boy is told that he may have a £5 note if he can pick it up. To suit the theory, the dominant idea must be that of the impossibility of the act ; but even if we allow this idea a momentary dominance, in what sense can it be held to continue dominant during a struggle in which every word and gesture express the strongest determination and incredulity? It may, perhaps, be suggested that the words and gestures express no more than an ineffectual effort to resist a nevertheless dominant idea ; but to this suggestion we may often oppose the 'subject's' subsequent description of his experience. And lastly, there remains the large class of cases which do not belong to what I have called the 'alert stage' of hypnotism at all ; and where the attention-theory can only be applied by the desperate assumption that unusual deadness of sensibility in one direction necessarily involves unusual concentration in another. If a jet of gas is seen burning specially brightly, it is doubtless reasonable to connect this condition with the fact that the other jets in the chandelier are turned off ;[1] but if no light at all can be perceived, the natural hypothesis surely is, not that some jet is burning brilliantly somewhere out of sight, but that *all* the jets are turned off. The energy of attention is not a fixed quantity, bound to be always in operation in one direction or another ; nor does the human mind, any more truly than Nature, abhor a vacuum. Even in the 'alert stage,' when the 'subject' can be made by an occasional word to enact scene after scene with astonishing veracity and vigour, the indications, if he be left alone, are of blankness not of concentration. He knows where he is, and will answer if spoken to ; but otherwise he sits inert and listless, if asked what he is thinking about will usually answer 'nothing,' and soon passes into the deeper stage with closed eyes, in which, though still able for a brief period to respond to questions, he is insensible to any ordinary tactile stimuli. It would surely be irrational to refer that insensibility to the strong concentration in some unknown direction of an attention which, even in the previous 'alert state' with open eyes, there was no ground for supposing to be active. I do not urge the cases of obvious reflex action (on which Prof. Stanley Hall has made some good remarks in the paper already referred to), since on a theory like that of Herr Schneider, in which the lower centres, so far as they distinguish stimuli, are credited with an embryonic consciousness, the question might there be a mere question of words. The cases which I have in view are those where the results observed cannot, by any stretch of the meaning of attention, be reasonably connected either with the 'positive field'—*i.e.*, with unusual absorption of the attention in the line of the result, whether as immediately producing it or as inhibiting its opposite[1]—or with the 'negative field,' where insensibility and irrational conduct are the result of an unusual draining-off of attention from the ordinary sensory or ideational tracts into some other line. They are cases where, if we wish still to hypostatise attention, we must just say that it is paralysed or has fallen asleep. But such a mode of expression is not to be commended. For the sleep and paralysis may invade some faculties and not others; *e.g.*, colour-blindness may supervene while the hearing remains perfect; and even in the deeper state of trance, ideas, and especially commands, may be impressed on the 'subject's' mind. What do we gain then by employing a general term to describe such special effects? When once the chandelier-metaphor is abandoned—when once it is recognised that in a multitude of cases the quantity of attention turned on in one direction is in no way connected with a withdrawal from any other—the idea of a common psychic factor seems out of place and misleading. The 'subject's' ear wakes while his eye sleeps; so in ordinary paralysis the right side may feel while the left does not; and it does not then occur to us to talk about the patient's *attention* being asleep on the left side and concentrated on the right.

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[1] *A propos* of this metaphor, which is often of course an entirely just one, the following instance may be worth recording. A hypnotised 'subject' who strongly resented being even slightly pinched was impressed with the idea that a person to whom he was attached had died. He showed considerable emotion, and was now completely indifferent to the most savage pinching. Again, several 'subjects' who were sensitive to pain in the alert state, were thrown into the deep state, and impressed with a command which was to be executed when they emerged again into the alert state : when the emergence came, they showed entire insensitiveness until the command was duly performed.

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[1] I gather from some expressions of Prof. Stanley Hall on the subject of 'active inhibition,' that he holds that the condition of the attention in this positive field may be further subdivided—that the *actual direction* of concentration may be not only towards the production, but towards the inhibition, of a particular mental phenomenon. This direct action of inhibition is hard to picture. The activity of active inhibition appears to me always to lie in a determined setting of the mind in some *new* direction: I mitigate a pain not by attending either to the pain or to an imagined absence of the pain, but by clenching my teeth and thinking of something else, *i.e.*, by opening quite new channels of nervous energy. So when Prof. Stanley Hall inquires whether when a hand is made insensitive to pain, it is 'due to abnormally intense inhibition of sensation or motion by consciousness, or is better conceived as an entire detachment and vagrancy of attention from consciousness, of which it is conceived only as a concentration,' I find a difficulty in admitting the possibility of the first alternative, as also, I must confess, in catching the meaning of the second. In the proposed case, at any rate, I should not myself see the necessity of having recourse to either. If the hand is rendered insensible in the ordinary way by faint sensory stimuli, it is surely a case where the theory of direct physical inhibition of the lower sensory centre is exactly in place. The very different case where the manipulations employed do not produce any sensory stimuli at all, as where no contact is used and the arm is thickly enveloped in clothes, is one on which I shall have a word to say later.

And now we must make a sudden transition, from the theories which have unduly magnified psychic functions in hypnotism, to those which have unduly ignored them, and have substituted the shibboleths of physical reflex action and automatic cerebration for that of attention. If we trace the natural logical route of the subject, we shall see that a time was almost bound to arrive when a purely physical account of the whole range of phenomena would be attempted. Up to the time of Braid's death, no serious question seems to have been raised as to the relation of *consciousness* to the hypnotic manifestations. No doubt, at any rate, was expressed as to the presence of consciousness in those higher phenomena which belong to the lighter stage of the trance, and which form by far the most interesting part of the whole subject. Braid himself speaks of 'the extraordinary power of concentration of thought,' 'the rapt contemplation,' 'the glowing scenes and images' presented to 'the fervid imaginations' of his patients. But the very fact of tracing the observed phenomenon, as he did, to a peculiar physical condition must lead on to the question how far the psychical factors of consciousness and volition are really involved in them at all, and how far the suggested idea has any true existence in the 'subject's' mind. Granting that his attention has to be directed in the first instance to the monotonous process by which the state is produced, we have seen that the power of attention might naturally be expected to be paralysed by that very process, so as not to survive when the state is once reached; and we have seen that, if the 'alert stage' is not caught and used, this is what actually happens, the gradual dulling of the faculties passing on into comatic unconsciousness. But there is nothing *primâ facie* unreasonable in supposing attention to have passed away *before* this deep stage is reached—in supposing that it does not survive that profound nervous change which, following Braid, we infer to have supervened as soon as the alert stage is reached. The state of the 'subject' is so obviously peculiar that there would seem to be no strong *à priori* obligation on us to interpret what would ordinarily be accounted signs of consciousness in the usual way. Dr. Carpenter's wavering utterances already indicate some suspicion on this point; and the gradual progress in our knowledge of physical reflex action, and of its special connexion with the hypnotic state, has naturally given the question a new shape and significance. Hypnotism being, beyond doubt, the field on which such reflex action reaches its furthest limit, where is that limit to be drawn? The consideration of this point will further establish the distinction between the lower and the higher hypnotic phenomena, and will thus further define the fundamental peculiarity of the latter.

If we begin at the bottom of the series of phenomena, we certainly find no reason to suppose that they are accompanied by any distinct consciousness or concentration of attention. If we found it hard to credit the frog with attention during the process of hypnotisation, it is still harder when the process is complete; and the insensibility and immobility of the human 'subject,' if left to himself in the 'deep stage,' seem to indicate a mental condition not very different from the frog's. Higher in the scale, actual experiments in reflex action suggest a decided lowering of the psychical functions. The heightening of the reflex responsiveness of the *muscles*, which is often the first symptom of hypnotic influence, does not, it is true, serve as a sign of diminished mental activity, especially as the phenomenon itself —the twitching limbs and the inability to control them—is peculiarly calculated to stimulate the 'subject's' attention. But Prof. Stanley Hall's recent experiments avoid this difficulty, and give us just the indication that is needed. For in establishing the diminution, during the alert stage of hypnotism, of the time necessary for *voluntarily* reacting on a stimulus, they suggest that the reaction has become to some extent reflex;[1] and since this implies that the brain-action associated with conscious attention to the work of reacting is diminished, we may fairly suppose that the amount of conscious attention is itself diminished. And this leads us on to the more general supposition, that actions which would normally involve very distinct consciousness may be performed by the hypnotic 'subject' either with a lesser degree of it or entirely without it. There is thus considerable justification for Heidenhain's explanation of the singular exhibitions known as hypnotic *mimicry.* According to him, the movements or words of the operator, acting on the eyes or ears of the 'subject,' stimulate as usual the lower sensory centres; but in the hypnotic state, the functions of the higher cortical portion of the brain (to which nervous discharges are supposed normally to pass from the lower sensory centres) are *inhibited*, and consequently no effect is produced in the way of consciousness. At the same time, the disturbance in the lower sensory centres, though thus unaccompanied by consciousness, is sufficient to pass on the nervous discharge to the most nearly associated *motor* centres, which will naturally be those whose activity will produce the *same* words or movements; since clearly no association can well be closer or more constant than that between the sight and sound of a movement or word and the act of producing that movement or word. And since the same inhibition of the cortical functions, which precludes consciousness of the impression, precludes also the normal exercise of the power to direct and control movements,[1] the mimicry takes place mechanically and unfailingly, *i.e.*, as genuine reflex action. Heidenhain further extends this explanation to the phenomena of what he calls 'automatism at command'. He attributes the machine-like obedience of the 'subject' to a similar inhibition of cortical function, and to the consequent opening of an unimpeded channel of discharge from the lower ideational to the motor centres—*i.e.* from the place of the

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[1] It is worth observing that this extension of reflex action in one direction may perfectly well co-exist with what might appear a contrary result in another. For instance, Prof. Stanley Hall's 'subject' (I presume while in the same hypnotic stage as he was in during the reaction-experiments) could gaze at a sunny window for 13 minutes without winking. But the

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ability to do this doubtless arose not from an inhibition of the normal reflex movement, but from a direct deadening of sensibility in a particular organ. So extreme a deadening in the 'alert stage' of hypnotism is rare, though out of several hundred 'subjects' I have found two whose eyes remain open even in the deep stage. Such exceptions are valuable as showing the variety that may exist even in the simplest facts of hypnotism.

[1] Heidenhain has introduced an *équivoque* into the terminology of the subject by calling the hypnotic action on the cortical functions *inhibition*, without pointing out explicitly that the *normal* action of those functions in respect of motion is to a large extent *inhibitory*, and that the complete description of the method by which the automatic reflex responses are brought is thus *inhibition of the inhibitory function.*

nervous discharges which, if allowed to pass on in the normal way, would result in the mental picture of an action, to the place of the nervous discharges immediately associated with the performance of that action.

But while it is important to note the facts to which this hypothesis will apply, and in which ideation and volition apparently play no part, it is of still greater importance to avoid mistaking this limited portion of the field for the whole. It is no doubt convenient for the theory to conceive the inhibition of directive and volitional power as accompanied by inhibition of consciousness; but the positive grounds on which the sweeping assertion of the unconsciousness rests are so flimsy that, but for the high authority of those who are opposed to me, I should almost have thought it waste of time to discuss them.

The most thorough-going statement of the doctrine in question appears, I regret to say, in a book which for general acuteness and comprehensiveness of treatment is superior to any other on the subject with which I am acquainted—the *Étude scientifique sur le Somnambulisme* of Dr. Despine, which in 1879 obtained its author a medal from the Medico-Psychological Society of Paris. The acuteness, it is true, is not unfailing. When a man concludes that the highest psychic manifestations may take place without consciousness, from the fact that the complicated vital functions of the animal and vegetable creation, while seeming to demand a capacity at least equal to that of an intelligent man, nevertheless take place unconsciously, and that the highest human intellect could not construct a butterfly's wing, we may defer our answer till a stomach or a tree begin to reason, or a butterfly's wing to decide knotty points. Popular arguments, moreover, are sometimes caught at in a manner fatal to consistency. Thus an appeal is made to the well-known ability of somnambulists to keep their balance in dangerous places and at giddy heights; which may reasonably be connected with unconsciousness of danger, and so far might pass muster as an argument for the temporary abolition of *all* psychic function. But on Despine's own principles, how should the somnambulist be any the safer for his unconsciousness? If cerebration, even its most subtle and complicated forms, can go on just as usual without any psychic correlative, why are we to except the particular cerebration that would normally be accompanied by fear, giddiness, and loss of balance? What is to prevent *that* in the given conditions from functioning in the normal way, and so producing a fall? So far from affording a proof of true automatism, this is emphatically a case where the theory of *attention*—of a mind exclusively occupied with the next step and not occupying itself with ideas of falling—seems of most assistance. Dr. Despine's next argument, however, has more force. He finds an indication that even the most complicated psychic phenomena of hypnotism may be purely automatic in the fact that in certain abnormal states the personality seems doubled; as where a person recovering from typhoid fever spoke and sang, while seeming to himself to be listening to an other's performance, and without any idea what the next sound to be produced would be. Similarly religious ecstatics and 'trance-mediums' have delivered impromptu discourses without conscious cerebration, and have been the devout and admiring auditors of eloquence whose sense they grasped only after it had issued from their own lips. In these cases Dr. Despine attempts to make the one part of the person—the watching and attentive part—the witness of the automatism of the other part; and since, viewed in this light, the presence of the witness is not necessary to the production of the result, an argument is obtained for the general possibility of similar manifestations without any participation of consciousness. This artifice of making two people, A and B, out of one, in order (in the absence of evidence) to obtain a sort of presumption that A's presence is not a condition of B's actions, is not very convincing; at the same time there need be no great difficulty in admitting the particular possibility claimed. Few will dispute that the talking and singing might appear as purely automatic phenomena; and even the impromptu discourse, with its far more complicated series of actions, may be conceived as producible either in the absence or with a minimum of consciousness—its contents being presumably a string of familiar ideas, closely connected by association, and clothed in a hackneyed phraseology. Despine's error is in sweepingly applying the same argument to hypnotism, without remarking how radically different are many of the phenomena there presented. The psychologist who claims for his study the dignity of a science is surely bound to follow the physicists' example, and to take some trouble to vary the conditions of his observations; and in this question of the presence of consciousness, the very simplest experiments suggest the sort of variation that is necessary. A 'subject' is asked a question to which the obvious reply is 'yes,' and answers 'yes': he is asked another to which the obvious reply is 'no,' and answers 'no'. 'Clearly automatic reflex action,' say Despine and Heidenhain, with a great show of reason. But now let us take a case where, though the answer is equally simple, the question itself does not suggest one answer rather than another. For instance, let some one, standing behind the 'subject,' give a very light clap of the hands at intervals, and let the 'subject' immediately before each clap and also at other times between the claps, be asked the question 'Do you hear this?' He will be found to answer 'yes' when a clap follows, 'no' when no clap follows. Now here even to suppose the answer 'yes' to be automatically given involves some strain of the reflex-theory; for granting that the physical attention might be fixed by the question—*i.e.*, that the nervous events corresponding to expectation of a faint sound might be thus produced—these events would in themselves have no tendency to produce the word 'yes' in response to the clap. In the normal state, that answer would involve a sense that a doubtful point had to be decided by the person himself, and the result truly communicated—a mental operation of some complexity and great delicacy; and if the same result be produced without any psychic concurrence, the physical events must at any rate differ considerably from anything involved in the trance-medium's self-propagating stream of irresponsible verbiage. But when the answer given is 'no,' the indication of a true psychical event—*viz.*, the consciousness of not hearing—corresponding to it seems almost irresistible; for here the answer, besides involving just the same delicate operations as the former one, would have to be reflexly jogged out not by the stimulation of sound, but by the *non*-stimulation of silence. Similar and far more complicated instances could be easily multiplied *ad infinitum.*

But Despine's principal argument, and Heidenhain's only one, depends on the 'subject's' subsequent *defect of memory* as to what has passed during his trance. It does not seem to have occurred to either of them that the requirement, as a test for present consciousness, that its content shall be afterwards remembered, requires itself any justification. Yet if the reality of that test be granted, the question whether a man was conscious when he read an article in the *Times* will depend on whether or not he receives a blow on the head when he has finished it. In his development of the argument, however, Despine shows considerable controversial ingenuity; and it must be admitted that those who have maintained the presence of consciousness in hypnotism and somnambulism have not always been happy in their way of accounting for the subsequent forgetfulness. This has been attributed by Dugald Stewart to the 'subject's' defect of attention to the events that are passing; by M. Maury to a mental paralysis brought about by an exhausting concentration of attention on those events,—theories so weak and baseless that we certainly need not grudge Despine the satisfaction of setting them off one against the other. So again, he has no difficulty in disposing of M. A. Lemoine's explanation that memory cannot survive the shock of the sudden change from the somnambulic to the natural state. A single instance, however, will show that his own counter-positions are very little stronger. He adduces the extreme violence of the things which have been done or suffered in the trance-condition, and argues that since these things, though so impressive in their nature, are not remembered, they must have been done or suffered unconsciously. The reply is obvious that equally violent things are done and suffered in *dreams* (which Despine again and again distinguishes from the trance-condition by the presence to them of consciousness and the *ego*), and are forgotten within a minute of waking. Equally obvious is it to notice that Despine's argument quietly begs the whole question; for he is *assuming* for the abnormal state the same relation of consciousness to memory as exists in the normal state, forgetting that that identity of relation is precisely what he has to *prove*.

But there is a more radical objection to all these arguments for the unconsciousness of the 'subject' from the fact that subsequent memory is absent—the fact, namely, that it is frequently *present*. The *primâ facie* indications of this subsequent memory, found in correct descriptions by the 'subject' of what he has been doing, are too obvious for even Heidenhain to have overlooked them; and he brings them into harmony with his general theory by supposing that, when the abnormal inhibition of cortical function is removed, the excitation remaining in the lower centres transmits a stimulus to the liberated sensorial ganglion-cells—to be psychically represented as memory of the original exciting cause, which, when it actually operated, had no place in consciousness. He holds, however, that some distinct hint or impulse is necessary to bring up this residuary excitation to the requisite strength. And for many of the simpler phenomena this seems a satisfactory hypothesis. Further, the outward indications of remembering, in a new hypnotic state, what occurred in a former one, and the apparent taking-up of an old track of ideas, or even of a connected discourse, at the point where it had been abandoned, have been brought by Despine within the scope of purely automatic brain-action—the renewal of the hypnosis bringing with it the former special excitatory conditions. But other phenomena seem quite beyond the legitimate scope of such a theory. If the 'subject' is brought into the 'alert state,' made to go through the ordinary platform buffooneries, and then reawakened, there is often not any breach of consciousness at all; and he gives a description, which there is not the slightest ground for calling in question, of his state of mind in performing the actions—as, *e.g.*, that he felt disinclined to do them but could not help it, or that he was aware of their absurdity but could see no reason for not doing them. Again, on re-hypnotisation the events of the previous hypnotic state are sometimes spoken of with fulness, in answer to perfectly neutral questions; nor do they merely recur in unrelated sequence, as by the release of particular springs, but are compared and estimated. There is here no mere rejoining of a temporarily-broken associative chain: the phrases used are to all appearance the normal results of a discursive and critical review of past experiences; and the *onus probandi* rests with those who deny that what gives every sign of being genuine memory is genuine memory. When once this hypnotic memory *is* duly recognised, the study of its varieties will be found of great interest; and in a recent paper (in MIND XXXIII.), I endeavoured to make this study the basis of a clear separation between two states—the 'alert' and the 'deep'—that have commonly been distinguished merely as steps in a single process, continuous stages on the path to hypnotic sleep.

The results there given have an important bearing on the central question as to the respective relations of consciousness and of reflex action to the hypnotic state, or rather states. Under appropriate conditions, we saw reason to recognise true subsequent memory, and therefore present consciousness, even in the lighter stages of what I called the 'deep' state; and when we passed upwards to the lower phenomena of the 'alert' state—*e.g.*, mimicry, and mechanical obedience—we could often appeal further to the absolute unbrokenness of the conscious stream. Where memory is absent, and where there is a distinct breach in the train of consciousness, arguments may still be drawn from experiments such as the one on hearing above recounted, where a point is left to the 'subject's' decision, and the truth of this decision is independently ascertained. Again, the end being suggested, the 'subject' will take his own means to accomplish it. He will use his reasoning powers —as in the case of Dr. Hack Tuke's 'subject' who was asked if he could not walk forwards, and who 'remembers arguing out in his mind, wearily, that it followed from this he was walking backwards'. He will even form original theories as to what is told him. For instance, a young man who had been impressed with the idea that he was going to be hanged, was then told that his sweetheart had been blown off the pier and drowned, and that the announcement of the event was in the evening paper: he at once surmised that she had purposely thrown herself off, through grief at his approaching fate. He was now told that the second edition of the paper showed it was a mistake, and he suggested two explanations; the first that the name Newington had been wrongly printed for Newton; the second (in which he testified his belief by seizing a paper and pointing to what he imagined to be the actual passage), that the words in the second edition ran '*almost* blown off the pier, and *almost* drowned'. Again the hypnotised person, like the somnambulist, will sometimes go through complex calculations, and bring out a correct result with greater ease and certainty than in his normal state; while the vividness and inventiveness of his imagination, as under the stimulation of questions he pursues aloud the course of his waking-dream, are a source of ever fresh astonishment.

These latter facts alone cannot of course be made conclusive against a thorough-going automatic theory; but they at any rate suggest strong probabilities, which ought to be met by something better than bare assertions. First we have Heidenhain's crude attribution to reflex mimicry of *all* the phenomena which others have attributed to the dominance of an idea—his statement, *e.g.*, that a 'subject' will never eat a raw potato on the suggestion that it is a pear, unless the operator makes movements of mastication in his sight. This view produces a treatise. A few more experiments are made, and these produce a practical recantation with an admission of the sufficiency of suggested *ideas* to produce the appropriate bodily movements. Then comes Despine, and maintains that even the 'ideas' have only a physical existence. We do not dispute the admissibility of his conception in simple cases, but ask in vain why we are to extend it over the whole hypnotic field, and apply it to elaborate actions which have been accompanied by consciousness in the whole of our experience, and present every imaginable sign that the attention is completely engrossed by them. Are we to forego all discrimination, just because it saves trouble to have a simple and thorough-going theory? The situation may be put thus. One set of facts (notably, the unbroken persistence of consciousness and memory in the passage into and back from the lightest stages of the trance) show that a hypnotic condition is not *ipso facto* an unconscious one. Another set of facts show that, in hypnotism, the line which separates mechanical and reflex from conscious and volitional actions is considerably shifted, and actions which would normally be above the threshold of consciousness sink below it. But what of that, if a multitude of actions, performed in that lighter stage of the trance to which the most interesting phenomena of hypnotism belong, do according to any natural interpretation imply a state distinctly above the threshold? We readily grant that we cannot draw the new line with certainty, even for a particular case; but all analogy is against supposing it shifted to the utmost limit at the very outset.

I cannot then for a moment believe that the automatic theory, in the extreme form which asserts unconsciousness for all hypnotic and somnambulic actions, will hold its ground. But in proportion as the theory becomes less sweeping, it gets into difficulties of detail. Heidenhain, as we have seen, has found himself obliged to recognise the psychic element in the higher hypnotic manifestations; but he seems oddly unaware of the effect of this admission on his exposition of the physical processes involved. The point of that exposition, it will be remembered, was the opening of a *direct* channel from impressional to motor nerve-centres, through inhibition of cortical function; and now we find a vast number of cases where consciousness, though conditioned by cortical activity, is *not* inhibited. It is of course easy to reply that here it is only the functions specially associated with spontaneous control and choice of movements that suffer inhibition. But that goes not a whit further as an explanation than Braid's general assertion of a profound nervous change; it is merely a necessary inference from the palpable fact that spontaneous control and choice have ceased. It is just this cessation—which, translated into physical terms, we should naturally call 'inhibition'—that constitutes the novel feature of the case; and nothing that we have otherwise known about inhibition (as Mr. Romanes, in his preface to the translation of Heidenhain's *Animal Magnetism*, has rightly admitted) could have led us to expect or conceive the results attributed to it. Heidenhain's *explanation* in fact, like that of the French Commission, is no more than a *restatement* of the problem. As long as the *whole* of cortical function can be supposed to be eliminated, his theory has a certain symmetry and explanatory power. It gives a plausible account, involving neither consciousness nor volition, of the power of the simple sound 'go,' to produce an immediate corresponding movement of the 'subject'—the merit of the explanation being the easily conceivable picture of the nervous events which it supposes, and which are quite on a par with the recognised facts of reflex action. But when, *e.g.*, a long series of orders is thoughtfully and painfully carried out, long after they were given—a phenomenon not uncommon in 'mesmeric' exhibitions—it seems impossible to adapt the old (or any other) neat and symmetrical hypothesis of the nervous processes to the new phenomena; and the word 'reflex' can be applied to the latter, if at all, only in the peculiar and carefully guarded sense which confines it to their *psychical* aspect. It seems hardly possible that Heidenhain should have missed seeing this, had he waited to formulate his theories until he had witnessed some of the higher phenomena in their more striking forms. As soon as the elements of consciousness and volition are clearly recognised as active in such phenomena, it surely must equally be recognised that the fundamental peculiarity of the condition is simply the absorption of those elements into the one suggested channel of attention or expectancy, and is thus quite removed from the lower plane of physical 'reflex'.

So far, then, our formula of *conscious* or *psychic reflex* action, as expressing the true peculiarity of the higher hypnotic manifestations, has been defended against two sorts of over-simplification; that which ignores the part played by the mind in the phenomena; and that which, accepting the part played by the mind, fails to see that its differentiating feature is the liability to respond to suggestions with the same mechanical readiness as a stimulated muscle displays when the normal inhibitory influence is withdrawn. It is only stating the condition thus indicated in other words, to say that the heart of the problem lies not in *consciousness* but in *will.* And here another important distinction presents itself. The hypnotic automatism must not be conceived as necessarily implying any abrogation whatever of the will, taken as the *sense of desire or impulse.* That element admits of all degrees. It may be absent altogether, and the 'subject' may perform his acts, consciously indeed, but with complete indifference—in which case nothing is commoner than for him to believe and to assert afterwards that he could have avoided doing those things if he had chosen; but it may also be present in full force, and may even be directly opposed to the course of action pursued. What *is* abrogated is not the sense of desire or the power of willing, but the sense of self-determination and the power of choosing. Even here questions of degree come in. In the very lightest stage—as exemplified by the boy who strove to pick up the bank-note—it cannot be said that choice, any more than desire, is abrogated; while even in a deeper stage, a 'subject' will sometimes experience such a sense of repugnance as seems to involve some residual power of avoidance; and occasionally he will retain complete power of choice in some isolated particular.[1] At the same time, this suspension of choice must be accepted as the most marked and central characteristic of the higher form of the hypnotic trance. And for those who regard the intuition of free-will as a subjective illusion, it is a point worth notice that decided abnormalities of conduct should present themselves precisely when, and in proportion as, the sense of having a free-will and being a choosing *ego* disappears. The variations are at any rate concomitant; and if nothing else varies, such concomitance would, outside metaphysics, be held to imply some sort of causal connexion. It may perhaps be objected that it would be incorrect to say that nothing else varies—that the essential variation is simply a change in the particular *motive* that assumes prominence; *e.g.*, that when a command is given to put the hand between the bars of the fire, and the determinant motive to a normal mind would be the dread of being burnt, the determinant motive to a hypnotised mind is the desire to obey the controller. But this is not at all in accordance with the evidence of many hypnotic 'subjects' who have been able to recall and give an account of their state of mind. They are often conscious of the falseness of what is told them, and of the folly and harmfulness of the things they are bidden to do[2]; they are even sensible of a strong objection to doing them, and *not* sensible of any positive motive impelling them to act; but it simply does not occur to them that they have a choice in the matter.[1] Even if we abandon free-will and stick to psychology, such facts as these seem decidedly awkward for the mechanical theory of the determination of conduct, at every point, by a motive that represents the greatest balance of foreseen pleasures or immunities from pain.

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[1] I was recently experimenting with a youth who had formerly been a telegraph-boy, and who had taken a strong dislike to the *métier*. When hypnotised, he was at the mercy of any suggestion or command, except one: nothing would induce him to carry a telegram. In its strength of resistance to the hypnotic mono-ideism, this repugnance really itself reached the mono-ideistic intensity; for the refusal was unaffected by considerations that would certainly have reversed it in the youth's normal state,—*e.g.*, when he was told that the matter was one of life and death, and that he should have £20 for the job.

[2] See a case reported by Dr. Hack Tuke, in the *Journal of Mental Science*, for April, 1883, p. 70.

And we are thus led to the completing step in our description of the higher hypnotic state. That state may be regarded as the most complete exemplification of Prof. Bain's fruitful formula—*the tendency of an idea to act itself out.* I cannot regard Prof. Bain's own instances (*Mental and Moral Science*, p. 91) as the best examples of the law; they seem to me rather to exemplify the common impulse to produce a marked effect, to 'make a scene' of some sort, even at one's own cost. At the same time, I think that his formula represents a reality, the scope of which even in ordinary life has hardly been sufficiently recognised. It seems to me the only possible ground for certain brief phases of sulkiness or perversity—the shade of meaning may be best conveyed by the slang 'cussedness'—where a person finds himself persisting in an attitude or a line of conduct which causes him acute discomfort at the time, with a promise of nothing but discomfort as the consequence. But in the case of hypnotism, at any rate, the idea is a most helpful one. For it enables us to bring under rule the cases that seemed most exceptional —where, *e.g.*, a 'subject' is told that he cannot do a particular thing, and struggles ineffectually to do it. We saw how absurd it was to represent his mind as throughout possessed by the idea of the impossibility, or his will as paralysed. But there is no great difficulty in supposing that the idea of impossibility obtains a momentary lodgment, and then tends to work itself out *physically*, even after the opposite idea—the idea that the action is possible and *shall* be accomplished—has dislodged it from consciousness. We might fairly compare the automatic continuance of the brain-movements which are evoked by the momentary stimulus of the first idea, to the long-continued and far-spreading muscular contractions which in a sensitive 'subject' will follow on a brief sensory stimulation: both are signs of the characteristic hypnotic irritability. This view seems strongly confirmed by the fact that, if the boy's muscles be examined, they will be found in the state which corresponds to the first idea—that of impossibility—and not to the second. I have myself tested this many times. A boy's arm being flexed, he is offered a sovereign to extend it. He struggles till he is red in the face; but all the while his triceps is remaining quite flaccid, or, if some rigidity appears in it, the effect is at once counteracted by an equal rigidity in the biceps. The idea of the impossibility of extension, *i.e.*, the idea of continued flexion, is thus 'acting itself out,' even when wholly rejected from the mind.

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[1] The determinist may, no doubt, make a more general objection: he may say that the consciousness of free choice, however interpreted, is a normal antecedent of human voluntary action; and that therefore he would have expected its absence to be accompanied by some other abnormality. I must, however, take leave to doubt whether, if taken unawares, he would have evolved this expectation—whether he would have regarded the (to him) purely illusive sense of having a free choice among several different courses as an indispensable element of directive force in the line of the one course that is actually taken. The hypnotic facts might therefore have an interest for him, if only because they clearly show the logical necessity of this very odd-looking admission.

It is perhaps well that my space is nearly exhausted; for it might be held unfitting, in this place, to do more than hint at results, however simple and precise, which break away from every form of hypnotic hypothesis. Community of sensation between 'subject' and operator; the distinction by the 'subject' of the operator's faintest whisper, either amid deafening uproar, or among a number of other faint whispers of similar sound; local anæsthesia produced in the absence of expectancy by a process which is itself unfelt; inhibition of speech or memory without a word or sign of any sort;—a writer who should say that he has participated in experiments which establish these facts would grievously imperil his chance of being listened to on the sober ground of Hypnotism. At the same time the *naïveté* and suddenness with which the clamorous facts of Hypnotism itself were welcomed within the portals of science, as soon as a *savant* of established reputation took the trouble to learn (very imperfectly) the ABC of them, and to proclaim that they actually were realities, that his own brother had been experimented on, and that it was *not* all cheating, as he had all his life supposed—may perhaps suggest a quiet surmise as to the scientific future of other events which, with all their absurdity and inadmissibility thick upon them, still go through the hollow form of taking place with surprising accuracy. But leaving these matters aside, no sketch of 'the problems of hypnotism' could be in the least complete without mentioning certain objections which present themselves in the direct path of orthodox hypnotic experiment, and which concern the very processes on which the hypnotic explanations are made to rest.

At the very outset, there is the difficulty of the vast differences of degree that exist in the power to produce the results—a difficulty which has never been fairly faced, much less surmounted. It has been asserted, and in a sense it may be true, that any one can hypnotise any one: any one, that is, may be competent to make passes in the gentle and monotonous manner which acts on the organism of sensitive 'subjects,' and with immense perseverance may produce some amount of the hypnotic effect. But let a score of likely 'subjects' be taken who have never before been hypnotised, and let a dozen persons who have been instructed in the right method of making the passes be set in turn to operate on them, and let this dozen include one recognised and successful 'mesmerist': if the experiment be often repeated, always with fresh 'subjects,' it may be safely asserted that in the long run the successes of the 'mesmerist' will outnumber those of all his rivals put together, and moreover will as a rule be far more marked in character and far more rapidly effected. And this is the more noticeable in that, supposing the usual process to be adopted, the condition which on the hypnotic hypothesis would appear to be the most important—the staring fixedly at an object in the hand—would be common to all the attempts, and little if any of the required monotonous stimulation would be derived from the actual passes—the operator's hands not being in contact with the 'subject' till perhaps the very final stage of closing the eyelids. But if the truth of the above assertion be denied—and fully to carry out the experiment with a new set of 'subjects' daily would involve great practical difficulties — the result of repeated attempts with the same 'subject' will afford a still stronger argument. A recognised 'mesmerist,' after a very few successful trials on favourable 'subjects,' can send them into the trance in a very short time, sometimes even with a single pass; but except in response to him they will show no particular susceptibility; and no attempt of others, extending only over the few seconds that suffice the successful operator, will produce any effect whatever. To account for facts like these, as Heidenhain has done, by differences in the moisture or temperature of the operating hands, seems little better than childish—as if a somewhat warm and moist hand (even were it indispensable, which it is not) were a sort of *lusus naturæ*. Somewhat more plausible is the suggestion that the facts really exemplify the dominance of an idea—that the 'subjects' *believe* that their mesmerist has special power, and as a consequence of that belief succumb to him. But it really seems absurd to suppose that this faith in a single individual's power is unfailingly complete and absorbing in every member of a set of careless boys who are new to the whole business, and whose obedience to the simple directions which they receive, and passive acceptance of what happens to them, certainly do not suggest any nice criticism of the nature and limits of their operator's faculties. There is no difficulty in impressing such 'subjects' with the idea that some other person present, who may be of a more dominant and imposing aspect than their recognised controller, is also a powerful 'mesmerist'; but this preparatory idea will not be found to invest that person with any of the controller's powers.

The hypothesis of suggestion and expectancy is still more obviously inappropriate where the end in view is not the *production*, but the *termination*, of the trance-condition. It would be very strained to imagine that the mind of the 'subject' is in every case dominated, or even that he *was* dominated at the time when the condition was being produced, by the idea that only the producer of it has the power to put a stop to it. Yet he will often remain completely uninfluenced by the efforts of others to awake him, and that, too, even when only a light phase of the trance has been induced. The upward passes, or the slap of the hands and sudden call, which are at once effective when used by the right operator, may be repeated in vain by others. This fact has occasionally led to very awkward results; as, for instance, in London some years ago, when one mesmerised 'subject' was set to mesmerise some one else, and then, after he had succeeded in producing a state of profound coma, passed himself into a condition in which it was impossible to impress him with the necessity of undoing his own work.

This disagreeable incident suggests another well-known class of phenomena of which no explanation on any purely hypnotic hypothesis seems possible—the so-called 'cross-mesmerism' or agitated bewilderment which is apt to result when a mesmerised person is subjected to new treatment from a second operator, before the effects of the former treatment have disappeared. The phenomena are of too alarming and distressing a kind to admit of deliberate experiment, but when once seen, are not easily mistaken; and a slight but sufficient indication of their nature is sometimes afforded in a momentary way by the violence which the 'subject,' who is perfectly docile in the hands of his mesmerist, will display when accidentally touched or interfered with by a bystander. If this be explained away as an instance of the 'dominance of an idea,' we ask, of what idea? Is it the idea of the operator, with which the 'subject's' mind is so wholly engrossed as to react with violence on any attempt to divert it? But if he is in the alert stage, his mind is so little riveted on his operator that it is abnormally ready to be borne off by any and every suggestion; and if he is in the deep stage, it is an unwarrantable assumption that his mind is engrossed with anything at all. Nor can the view that *suggestion* is the cause of the phenomenon—though a natural enough one to start with and applicable to some cases—survive a prolonged and patient study of the facts. Instances will be found where it is practically certain that no idea, tending to make the 'subject' dread interference from all persons save one had been even remotely suggested to him; and where, if any such idea were really dominant in his mind, it could only itself be an instance of the specific *rapport* which Hypnotism fails to account for.

Such considerations as these, though they lie across the threshold of the subject, are apt from their very generality to be disregarded; but it is easy enough to find in single definite phenomena—and these not among the outlying marvels above referred to, but among the experiments which are the stronghold of the hypnotic theories—a starting-point for similar objections. A boy is placed in a chair and is not hypnotised; but his arm is rendered stiff and insensible after a minute of downward stroking. 'Reflex irritability,' say some of our friends; 'the monotonous sensory stimulation has produced the well-known tonic spasm.' A thoroughly sound explanation; but let us try the effect of downward passes made without contact or any possibility of sensory stimulation. The same result ensues; the usual tests of torture and bribes may be applied, with complete impunity to the 'subject's' arm in the former case, and to the experimenter's pocket in the latter. 'Expectant attention,' say other of our friends; 'an interesting example of the power of mind over body; the boy believes in the operator's power, and his mental energy, being absorbed into the single channel of the expected effect, brings that effect to pass.' Very probably; but on experimental principles it is surely just worth while, before promulgating this very probable theory, to test it by a single variation of conditions. Let the experiment be repeated, then, with this difference—that the boy is made to read aloud a paragraph from a newspaper as long as the process continues, having been previously warned that he must carefully attend to what he is reading, as he will be examined in it afterwards. After this warning it is not surprising that he should stand the examination successfully; but a little surprising, on the proposed theory, that the stiffness and insensibility should again have supervened.[1] When such an experiment has succeeded with 'subject' after 'subject,' and when their expressions of astonishment have suggested that in many cases the idea of the result was not even latently present in their minds, it is natural to devise measures for preventing the possibility even of the latent idea; as, *e.g.*, by extending the 'subject's' ten fingers on a table in front of him, with a thick screen between them and his eyes, selecting a couple of them (the combination being of course varied each time), and then subjecting the selected pair to the same process as the arm. But I am approaching the region of marvels and the theory of specific influence which I have here forsworn. To relieve one's mind by observing how fairly the mesmeric hypothesis embraces and explains the facts which so violently break away from the hypnotic one, is perhaps not more unscientific than to neglect and ignore those intractable facts; but to those who do not share it, such relief will naturally seem to resemble the escape from subordinate perplexities which the devout Catholic makes by swallowing one huge assumption at the outset.

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[1] With regard to the question how far the idea of his arm was present to the 'subject' of this experiment, it was instructive to compare his vivacious reading and subsequent remembrance in this case with his mechanical reading and subsequent oblivion when (as described in MIND XXXIII.) he had been thrown into the hypnotic state, and then had the idea of his arm prominently brought before his mind. In that case the idea remained truly dominant, and left no room for attention to the reading.

II.—A CLASSIFICATION OF FEELINGS.

By Charles Mercier, M.B.

II.

Closely allied to the Antagonistic feelings,[1] and blending with them on their common frontier, is a group (Genus 2) which I have called the feelings of Repugnance, and which are distinguished from the preceding genus by a small but decided difference in the character of the circumstance in the environment with which they correspond. In the case of the Antagonistic feelings this circumstance is an actively noxious agent, that is to say, an agent whose action would be noxious if applied to the organism, and which is credited with the ability to gain access to the organism, or at any rate to attempt to do so. In the present genus the latter quality is wanting. It is still believed that the agent would be noxious; it may be intensely noxious, if applied to the organism; but it has no power of itself to gain access to the organism. The element of accessibility, so important in the preceding genus, is absent, and this difference divides the one group from the other. We have already seen that in the circumstances arousing Antagonistic feelings the element of accessibility is of prime importance. We may, therefore, expect the class of feelings from whose evoking circumstances this element is absent, to exhibit a well-marked difference. On the other hand, since there is every degree of accessibility, from none to a maximum, we may expect the feelings of this group to graduate into those of the previous one.

When a circumstance in the environment is passively noxious in the sense here used, it is obvious that it cannot act upon the organism, and its noxiousness cannot be exerted unless and until the organism spontaneously approaches and uses or meddles with it. From this it follows that, when there is reaction on the part of the organism, this reaction takes the form either of avoidance or of ejecting the noxious circumstance from the environment. Obviously circumstances thus characterised, although they are antagonistic to the conservation of the organism, are so in a far less degree than those in which the noxiousness is active, and hence it follows that the Repulsive feelings as a group lie upon the confines of the great Class (I.) of feelings that we are now considering—those that affect the conservation of the organism—and approach in character those of Class V., which correspond with actions that are neither conservative nor destructive.[1] When we observe that this last Class includes the Æsthetic feelings, it will, I think, be admitted that there is a real and well recognised connexion, partly direct, partly antithetical, between them and such feelings as Horror and Disgust. Circumstances that are passively noxious are much less common than those whose noxiousness is active, and hence feelings of the class now considered are much less numerous and less definitely characterised than those of Antagonism.

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[1] Forming Genus 1 of the Order of "Self-conservative Environmentally-initiated Emotions"—Class I., Sub-class I., Order II., in our classification (see Mind XXXV.).

If the matter be considered in the light of Evolution, it will appear that in the history of the race a vast number of cases in which a thing has been spontaneously meddled with by the organism and thereupon found to be noxious, have been cases in which the thing was taken as food. Hence may be formed a natural division of the Repulsive feelings according to the way in which the noxiousness is manifested.

TABLE IV.

Class I. Sub-class I. Order II. Genus 2: The Feelings of Repugnance.

The feeling corresponds with the relation to the organism of an agent in the environment which is cognised as passively noxious.	to the taste	and moderately noxious.	Disgust.
		and intensely noxious.	Loathing.
	in other ways or generally	and not of superior power.	Dislike.
		and of superior power.	Abhorrence.
		and of overwhelming power.	Horror.

The feeling of Horror occupies in this class a position homologous with that of Terror in the last, the sole difference being the character, as active or passive, of the noxiousness of the circumstance by which they are aroused. Now a circumstance which is only passively noxious will not be cognised both as noxious and as of overwhelming power, unless both of these qualities are very conspicuous. Every agent whose power is overwhelming is passively noxious, since if we get in its way it will crush us, but in the great majority of such cases the power alone is cognised. The noxiousness, being inconspicuous, is omitted from the cognition, and the feeling aroused is one of a simpler class, which will be subsequently considered. Nevertheless, in every such circumstance the noxiousness is potential, and only needs to be cognised for the feeling of Horror to arise. A few concrete examples will make the matter clearer. When we approach the brink of a stupendous cliff, we experience, in addition to and apart from any feeling of giddiness, a vague feeling of Horror. This feeling arises from the cognition of the possibility of falling over. The circumstance which renders such a catastrophe possible is cognised as of overwhelming power and as noxious, both these qualities being conspicuously present, but since its power will not be exerted unless we voluntarily approach the brink and precipitate ourselves from it, the noxiousness is passive. If a man is in the hands of enemies who are carrying him to the brink to throw him over, the noxiousness is no longer passive in the sense here used, and the feeling aroused is one not of Horror but of Terror. When we view the action of some immense machinery, such as that which propels a great ship through the water, we are in the presence of an agent of overwhelming power; but, since the latent noxiousness which every such agent possesses is inconspicuous, the feeling aroused is one due to the cognition of the power only—a feeling of Admiration or even Awe. But now suppose we are shown the place where some workman became entangled in the machinery and was torn to pieces; instantly the feeling changes to Horror; and why? Because the latent noxiousness has now become conspicuous, and its addition to the qualities already cognised brings about the change of feeling. Still there is no terror, for the machinery being powerless to harm us unless we interfere with it, the noxiousness is cognised as passive. This latter instance is an example of the most numerous class of cases of passive noxiousness, in which the noxiousness is not cognised at all unless it is displayed. If, however, this quality is exerted upon the organism it ceases to be passive. It at once enters the active class and the feeling aroused is one of Terror. Manifestly the only way in which the noxiousness can be displayed and yet remain "passive" is by being exerted on some one else. Hence the great majority of feelings of Horror are associated with the cognition of severe injuries suffered by other people. Hence railway and other accidents and surgical operations are common occasions of this feeling. The gallows and the guillotine, the Black Hole at Calcutta, the Well at Cawnpore arouse feelings of Horror, and so do all similar spectacles.

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[1] *Cf.* Mind XXXV. 337.

Where the circumstance in the environment is passively noxious and its power, without being overwhelming, is yet superior, in so much that the organism cannot abolish it, then the feeling of Abhorrence is aroused. Such circumstances are not common, and the feeling is therefore not well characterised. As in the case of Horror the noxiousness may be cognised only when it is exerted towards others, and such cases are found in the Abhorrence with which a refined nature regards a bull-fight, or a prize-fight, or a father unmercifully punishing a child. An example of the feeling aroused by a noxiousness which is passive but more directly concerns the organism is seen in the Abhorrence with which a drunken husband is regarded by a refined woman.

Agents of inferior power that are passively noxious will not commonly arouse any feeling at all. If I tread upon a sharp stone or run a thorn into my flesh, there arises of course the sensation of pain from the wound, but the circumstance in the environment—the stone or the branch—does not, I think, arouse any emotion sufficiently definite to receive a name.

An environmental circumstance which is noxious to taste is of necessity passively noxious, since we taste only those things that we voluntarily put into our mouths; when the operation is complete there is the unpleasant Sensation of distaste. But when the thing is not yet tasted, but stands in such a relation to the organism as to arouse a cognition of the process of tasting, then the feeling is of Emotional order, and where the thing is cognised as noxious, the emotion is one of Disgust. If it is cognised as excessively noxious the emotion is one of Loathing. That this is the true nature of these feelings does not, I think, since the writings of Darwin, require a laboured demonstration.

The connexion between the feelings of Disgust and Loathing on the one hand, and Abhorrence and Horror on the other, is indicated no less by the similarity in the character of the circumstances which arouse them, than by the fact that they are all associated with nausea, and when pushed to excess, with actual vomiting.

Genus 3. The feelings which correspond with the relation to the organism of a *beneficent* environmental circumstance, are, as in the case where the circumstance is noxious, divisible according to the character of the circumstance as active or passive. The feeling aroused by an agent which is beneficent actively, that is to say, by gifts or services rendered to the organism, differs from the feeling aroused by a circumstance that is passively beneficent, that is to say, whose mere presence in the environment is beneficial to the organism. In feelings of this group the cognised power of the agent with respect to that of the organism is a much less important element in determining variations of the feeling than it is in the previous group. In the presence of a noxious agent, such a cognition is all-important. The mode of reaction of the organism is determined very largely by the estimate that is formed of the power of the agent, and feeling, which is the correlative of action, must vary and does vary greatly with the same estimate. But in the case of a beneficent agent it is manifest that its power with respect to the organism is much less important, and hence the divisions of feeling on this basis are much less numerous.

TABLE V.

Class I. Sub-class I. Order II. Genus 3 : Kindly Feelings.

Feelings corresponding with the relation to the organism of an agent in the environment which is beneficent.	actively	and is not of overwhelming power.	Gratitude.
		and is of overwhelming power.	Reverence.
	passively	and is not of overwhelming power.	Liking to Affection.
		and is of overwhelming power.	Devotion.

Inspection of this Table will doubtless elicit the criticism that the distinction between an agent that is beneficent by its mere presence, and one that is beneficent by service rendered is one that cannot always be made; but the reply is that the feelings defined by this distinction are so closely allied that the distinction between *them* cannot always be made, and that the imperfect limitation of the definition corresponds with the imperfect limitation of the thing defined and so justifies itself. Although the two varieties of beneficence often coexist in the same agent, and the feelings of Gratitude and Liking are consequently often present together, yet the more completely the beneficence is, or is cognised as, active, the more does the feeling partake of the nature of Gratitude, and the more completely passive the beneficence the more unalloyed is the feeling of Liking. That Gratitude does not arise save in correspondence with the circumstance of gifts or services rendered, every one will admit. It is universally accepted that Gratitude is the name given to feeling that arises under such circumstances. It follows, therefore, that the feeling of Liking, and its intenser form Affection, do not arise under such circumstances. Of course it is possible, and it is very frequent, to like a person who renders us services, but this feeling, although it is commonly mingled with the feeling of Gratitude, is yet quite distinguishable from it.

Doubtless in the case of a much-loved person, with whom many gifts and services have been interchanged, the volume of kindly feeling that is at length generated does not admit of separation into parts, so much being scored to Gratitude and so much to Liking; but it is not in the complex cases that an explanation is first to be sought. Whatever laws are found to rule the simple cases rule also, we may be certain, the cases that are formed by compounding of the simple cases, although in the latter their operation may be so disguised by mutual interference as to be unrecognisable. Further, it must be admitted that a feeling that begins as Gratitude may, and often does, merge into Liking; but it is easy to see how this may occur without invalidating the distinction here made. Suppose the case of a child that receives a gift and feels Gratitude towards the donor and pleasure in the gift. The next visit of the donor will, according to a well-known psychological law, arouse in a faint form the pleasurable feelings originated by the reception of the gift. The donation is repeated, and again the gratitude and the pleasure are aroused. On the next visit these feelings will again arise faintly, but more vividly than on the former occasion, and with each repetition the pleasure aroused by the mere presence of the donor will be augmented. When the pleasurable feeling so aroused becomes appreciable in amount independently of the Gratitude it is termed Liking; and such a feeling obviously satisfies the definition I have given, for it is the feeling aroused by the mere presence of a beneficent agent and not directly by the circumstance of gifts or services rendered. The distinctness of the two feelings is well seen in the fact that a service may be rendered to us by a person whom we do not like, and may arouse its corresponding feeling of Gratitude without the antipathetic feeling of Dislike being by any means abolished. An example occurs when we receive gifts of the white-elephant character from a kindly-intentioned bore. We do not like the donor. We may feel an actual repugnance to him. He is a nuisance, and his gift is a burden; but at the same time we cannot help feeling some Gratitude towards him. Or take the case of a stern undemonstrative man who lavishes gifts upon a lad who dreads him. The lad is never at ease in his presence, dreads the sound of his footsteps, longs for his departure, has no shred of liking for him, but yet is deeply grateful to him and would go through fire and water to serve him. On the other hand, liking may exist quite apart from gratitude. We all like Falstaff; and I suppose most of us can reckon among his acquaintances at least one 'rip,' to whom we have certainly no feeling of gratitude, but whom we say we cannot help liking.

From these considerations it appears that Gratitude and Liking or Affection, however closely they may become entangled in some cases, are quite separate in their origin; and since the former is always aroused by gifts or services rendered, and since such circumstances, if they arouse any feeling at all, arouse that of Gratitude, it follows that the feelings of Liking and Affection must correspond with some other relation of the environmental agent to the organism. This relation I have stated to be that of an agent which is passively beneficent or beneficent by its mere presence. The question is, how can an agent be beneficent in this sense? Only, it is evident, by affording or increasing the conditions for the exercise of some activity on the part of the organism. All cases of Liking will, I think, if examined be found to answer this description. One man likes the country, another the town. Why? Because the country affords that one and the town this one the most favourable conditions for exercising his activities. If I like a quill-pen better than a steel-pen it is because the former is easier to write with—offers more favourable conditions to activity. If one man likes as a companion a good listener and another an amusing talker, it is because the proneness to activity in the first is greater in speech, and in the other in other operations, and hence the amount of activity facilitated is greater when the first gets an opportunity to speak and the second an opportunity to listen. If I like this picture better than that, it is because, as will appear when the Æsthetic feelings are considered, this one requires less exertion on my part to appreciate than the other—in other words, the activity required of me is more facilitated. The term 'activity' is here used in a larger sense than that of energy expended by the organism. Perhaps the expression 'exercise of the faculties' would be in some respects better, but its connotation appears to me less definite. Apart from these instances, which of course do not cover the whole field, and which allow therefore of the retort that in other cases of Liking the nature of the relation with which the feeling corresponds is different, there remains the comprehensive argument that this relation is the only one possible. For if the agent is beneficent to the organism and its beneficence does not take the form of actively rendering gifts or services, what other form is possible? Manifestly the only other way in which beneficence *can* be shown is by affording opportunity for the exercise of some activity of the organism. It may be said that if an agent does facilitate our activities this itself is rendering us a service, and that the feeling of Liking is placed out of court, or rendered merely a variety of Gratitude. But there is a difference. If any activity is checked by some condition or the want of some condition in the environment, so that a definite desire results, then the removal or supply (as the case may be) of the condition, is recognised as a service rendered, and Gratitude is felt; but if the beneficent agent merely facilitates the exercise of an activity whose disuse has not reached the point of desire, the feeling aroused is not Gratitude but Liking. Clearly, however, the difference is one of degree, and concerns not indeed the degrees of beneficence of the agent, but degrees in the conditions of the organism. Hence we find that, when an activity has less means of expression than usual, any agent which affords these means is looked on not only with Liking but with a certain amount of Gratitude. For instance, we say that we like a friend to come and sit with us. But if we have been cut off from social intercourse by sickness we are grateful to him for the same action. Lastly, since Liking corresponds with the relation to the organism of an agent which facilitates the exercise of its activities, the volume of the feeling will vary with the amount and number of the activities that are facilitated, and its intensity with the degree in which their conditions are afforded by the agent in question. Hence powerful Affection for a house long dwelt in; hence too, the feeling of Liking with which the least patriotic people view their native shore after experience of the labour of conversing in foreign tongues. Hence also the Liking with which we regard an old friend, the representation of him calling up by association the vague remembrance of innumerable occasions of social activities facilitated.

The distinction that I have drawn between Reverence and Devotion as corresponding with a relation to agents that are active and passive respectively, is not, it must be freely admitted, one that is commonly present in the minds of those who use the terms, but I submit that it expresses a real difference in feeling, and that these two terms which are floating in common use to express vaguely any feeling that lies about the region here defined, may legitimately be taken and fixed one on one side of the line that I have drawn, and the other on the other; and it is possible to show, moreover, that some such connotation as that which I have attached to them is already to some extent inherent in the terms. Thus, we speak of a man being *devoted* to another person or to a cause when he serves it *without reward*, showing that the person or cause served is regarded as passive so far as beneficence is concerned. On the other hand the feeling of Reverence does not imply action on the part of him who reveres, so that if there is any action between the two it is effected by him who is revered. (A reverent demeanour is one which is as passive as possible; it is not only passive but demonstratively so. Not only is the body kept at rest when reverence is to be expressed, but it is placed in a position the furthest removed from that of incipient action. The head is bowed, the knees are bent, the hands are placed together.) So far, therefore, the vernacular use of the terms is in harmony with the meaning attached to them here. Both terms, however, are vaguely used, and it is not to be supposed that the majority of people would draw a distinction between feelings so closely allied. But when things commonly confounded are for the purposes of science distinguished, it becomes necessary to limit the denotation of trite terms, and so long as this alteration of meaning is avowed and the new limitation declared, no harm is done.

Reference to Table II. (No. XXXV. 340) will show that the next two Genera of feelings are distinguished by the fact that the environmental circumstance with which they correspond is not an *agent* but an *event*. The difference is clear and is considerable, and the feelings of these genera are as distinct from those of the last as a state is distinct from a change of state. Events are divisible just as agents are, into those which are noxious and those which are beneficent,[1] and the feelings exhibit a corresponding division. Every event is a change from an antecedent state to a consequent state, and is beneficent if the consequent is the more favourable of the two, noxious if the antecedent is the more favourable. The amount of the change, that is to say, the amount of difference between the antecedent and the consequent, regulates the intensity of the feelings, while its position in time is the basis for their specific character.

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[1] There is a third group—those that are neutral or indifferent—but these do not primarily affect the conservation of the organism and are therefore excluded from the great Class of feelings that we are now considering. They will be examined in their place in Class V.

TABLE VI.

Cl. I. Sub-cl. I. Ord. II. Genera 4 and 5 : Grievous and Joyous Feelings.

The feeling corresponds with the relation to the organism of an event in the environment which is cognised as	noxious	and distant in time.	Anxiety.
		and impending.	Dread.
		and imminent.	Alarm.
		and does not occur.	Relief.
		and has happened.	Anguish, Grief to Sorrow, Regret.
	beneficent	and impending.	Pleasurable Anticipation.
		and imminent.	Eagerness.
		and does not occur.	Disappointment.
		and has happened.	Joy, Delight to Gratification.

The foregoing Table explains itself, and does not I think require any comment. It completes the enumeration of those feelings of Class I. that *correspond with an interaction initiated by the Environment.* We now pass to the consideration of the second of the two great groups of feelings which together constitute this Class.

Class I., Sub-class II. *Feelings that correspond with interactions primarily affecting the conservation of the organism, which are initiated by the Organism.*

It has already been pointed out that the sub-division of the various groups of feelings is not necessarily determined by variations in the same circumstance in different groups. A little consideration will be enough to show that the qualities of interaction which determine the subdivisions of this group of feelings must be very different from those in accordance with which the divisions of the previous group were made. In that case the quality of the action as noxious or beneficent was an element of prime importance in distinguishing between the subgroups, but when an interaction is initiated by the organism itself, it is obvious that no such distinction applies. There is but one way in which the organism can spontaneously act upon the environment, and that is by means of muscular movements; and although the part of the organism that takes the lead in the movement may be very different in different cases, and although the direction, force, extent and duration of the movement may all vary very widely, yet it is evident that these are but differences of degree, and that no satisfactory classification of interactions can be founded upon them. It is evident that we must look for some principle, quite different from those that have been found of service in dividing the environmentally-initiated actions, to serve as a basis for classifying those which are initiated by the organism. Such a principle is found in the *stages* which these actions go through.

Expressed in terms of the adjustment of the organism to the environment, an act is a movement of the organism adjusted to an end (Spencer), and it is with this movement thus adjusted that the feeling corresponds. Regarded physiologically, an act begins as a nervous process. It is first of all an energising of the highest nervous centres or some of them. Although such a process is of course not itself an act, and although it may exist without the occurrence of any consequent act, yet whenever an act is performed such a process is a necessary antecedent—is the first stage of the continuous process which in its entirety constitutes the physiology of the act. The feeling, which is the state of the organism that corresponds with the action of the organism on the environment, begins when this action begins, that is to say, it begins with the nervous process that eventuates in an act. But we have seen that not every nervous process does eventuate in movement. There is therefore a difference between the feeling that we are now considering —that which accompanies the earliest stage of the initiation of an action—and the feeling of purely intellectual exertion. This difference is on the physiological side a difference in the momentum of the discharged energy. If the energising of the nerve-regions concerned becomes so active that the liberated energy has sufficient momentum to overcome the resistance of the nerve-paths and to reach the muscles and set them in action, then there is a feeling of initiated action; but if this degree of activity is not attained, this feeling does not arise. Now the passage of the nerve-current from the highest nerve-regions to the muscles is not instantaneous. It occupies time. Between the attainment of the requisite tension or momentum on the part of the nerve-process and the resulting muscular contraction there is a brief but appreciable interval. During this interval there is no movement of the organism, but the act is already virtually begun; and in correspondence with this initiatory stage of the act there arises a feeling, which is part of the feeling appropriate to and corresponding with the act, and yet has a certain difference from the rest of the feeling which corresponds with the remainder of the act—with that part in which the movement from incipient has become actual. To those who know nothing of the physiological processes which eventuate in bodily movements, and to whom the movement of a limb is the first thing that happens in an act, the feeling that corresponds with the incipient stage of the act, and occurs before the movement, will appear to occur previous to and altogether apart from the act. Many things concur to confirm this notion of the separateness of this portion of the feeling from the act with which it corresponds. For every case in which the nervous discharge attains a tension sufficient to overcome the resistance of the outgoing channels and to reach the muscles, several instances occur in which a less powerful discharge occurs from which no movement results. In such cases a mental state arises which we call an idea of the movement, and which is precisely similar, save only that it is of inferior intensity or vividness, to the feeling corresponding with the incipient stage of an act. Such a feeling, since it is not associated with an act, is looked on as quite apart from action, and helps to confirm the notion of the independence of the intenser feeling also. Again, when the passage from the nerve-centres to the muscles is interrupted, as it often is in everyone's experience, from temporary pressure on nerve or artery, an act requiring those muscles will stop short at its initiatory stage. Since the nerve-currents do not reach the muscles there will be no movements; but since the nerve-centre discharges with the requisite energy, and the first stage of the act occurs, the feeling appropriate to that stage will also occur. Furthermore, although this feeling is but an intenser form of the mental state which we call an idea of a movement, yet from this state it is sharply distinguished not by its intensity, which is a matter of degree and therefore does not admit of sharp distinction, but by its association with action. For while the intenser feeling always immediately precedes a movement, the fainter feeling never does. Often two or more of these fainter feelings arise in succession or in alternation, but they are not associated with movement until one of them obtains preponderance and emerges into the state of greater intensity, and this is the prelude to the corresponding movement. From these conditions it results that the feeling which corresponds with the incipient stage of an act is regarded as distinct on the one hand from the fainter feelings which it resembles, and on the other from the act with whose initiation it corresponds. To those who do not know of the existence of the incipient stage of an act, and who look upon the muscular movement as its earliest beginning, the feeling that accompanies its incipient stage will stand out in conspicuous isolation as the only and invariable antecedent to every outward act, and hence will inevitably be regarded as its cause. To this feeling is given the name of Will. (Genus 1.)

Those who are accustomed to regard Will as a separate and primitive faculty of the mind will of course dissent from this view of its nature. To some of them the whole system that is here advocated will be so discordant that a defence of a single position would be futile. Those, however, who admit the validity of Mr. Spencer's division of Mind into Feelings and Relations between Feelings ought not to be hard to convince. If Will is not what I have stated it to be, what is it? By hypothesis it must be either a feeling or a relation. If it is a relation, what are its terms? Until some answer is given to this question, which appears to me impossible, Will has no *primâ facie* claim to be considered a cognition. Whether it is a feeling or no may be reasonably discussed, but I do not think that anyone will contend that it can be a cognition, and if not, then to those who accept Mr. Spencer's psychology there is no other alternative; it must be a feeling. Once it is admitted that Will is a feeling, and not a primitive division or faculty of Mind, its position among other feelings becomes a legitimate object of search. Whether the position that I have assigned to it is correct or no is not of much importance. What I wish to insist upon is that it is at least possible to assign to Will a definite position in a systematic arrangement of the Feelings, and thereby to harmonise the discrepancy between Mr. Spencer's fundamental division of mind and his subsequent classification of feelings. Every mental state, he says, is either a cognition or a feeling. Very well. Will is certainly not a cognition. It must then be a feeling. If it be a feeling, to what position in his classification are we to relegate it? Is it a presentative feeling? or a presentative-representative, or a representative, or a re-representative feeling? Mr. Spencer himself could scarcely give a satisfactory answer. The place I have given it may not be the correct one, but it does at least give it some position, and one which appears to me to accord with the fundamental principles of Mr. Spencer's System of Psychology.

Still, if Will be a feeling, it must be a very peculiar one. There must be something in its nature highly distinctive from all other feelings to induce so many great authorities to allot to it a position not only apart from the feelings but altogether separate and unique. An explanation of this fact is certainly required, and can, I think, be found in considerations of which the following is an outline. Returning to the physiological aspect of the question, it is to be noticed that the nervous process which is the objective condition of Will, although it has the characters common to all nervous processes, has one character that is special and unique. Other feelings have as their physiological basis the activity of this or that region of grey matter—a region which may be large or may be small, but which includes a portion only of the highest nerve-centres, and leaves other regions to be simultaneously and separately active, and to form the basis of simultaneous and different feelings. That is to say, other feelings form a portion only of consciousness and are therefore considered to be distinct from the *Ego* which is the sum total of all the states of consciousness at one time co-existing. But the nervous process that underlies Will is a far more extensive affair. It is not, as that of other feelings is, the activity of this or that centre or region; it is the resultant or algebraical sum of the activities of *all* the highest nervous regions. Hence the feeling which it underlies is in a special manner identified with the *Ego*. When I say I have a feeling of warmth or anger, I regard the feeling as something distinct from the *I* that feel it. But when I *will*, I regard the will as the expression of my whole self. And it is this identification of Will with the subject that constitutes its peculiarity as compared with other feelings, and that has led to its relegation to a region of mind apart from them.

The classification of the group of feelings with which we are now dealing depends, it will be remembered, upon the *stage* of the action of the organism on the environment at which the feeling occurs. The next feeling that we have to consider is therefore that which corresponds with the next stage of this action, and occurs when the current of energy is delivered from the nerves into the muscles and the muscular contraction takes place. Every spontaneous action of the organism on the environment is effected by muscular contraction, and the feeling accompanying a muscular contraction is therefore a necessary part of the feeling that accompanies every act, however the act may be performed and whatever part of the organism may be chiefly concerned in it. To this feeling we give the name of Effort. (Genus 2.) The simplest acts, such as phonation, turning of the head, and so forth, contain no other physiological elements than the nervous discharge and the muscular contraction. When these two stages are gone through the act is complete, and the corresponding feelings of Will and Effort alone occur. Further, it is evident that we have now exhausted the possibilities of feeling as it corresponds directly with activity of the organism pure and simple. The moment the action of the organism brings it into contact with a resisting body in the environment, at that moment a reaction of the environment is added to the action of the organism, a state of feeling corresponding with this reaction is added to that which corresponds with the action; and the total feeling that results is compounded of the two. Then arise the feelings of Resistance, Hardness, Softness, Elasticity and the like—states of mind that are more cognitive than sensitive, and that need only be referred to here for the sake of formal completeness. (Genus 3.)

It will be remembered that, in the case of the Environmentally-initiated feelings, we considered as a case of interaction between the organism and the environment the mere relation to the organism of an agent or event in the environment, even though the agent should never actually act upon the organism nor the event actually occur. The feeling, we found, corresponded with the relation to the organism of an action that was potential only—of an activity, real or not, but cognised. Similarly, in the Organismally-initiated class, we find that feelings may correspond with the relation to the environment of an act or group of acts of the organism which have not yet occurred and may never occur—which are as yet only possible or potential. As in the former case, the relation, to elicit a feeling, must be cognised, and, as in that case, the feeling corresponds with the relation that is cognised, correctly or no, and not necessarily with the relation that actually exists. In the former case the means by which the cognition of the activity in the environment was reached, was regarded as outside the scope of our inquiry—as pertaining to the region of cognition and not of feeling; and similarly in this case the means whereby the organism forms an estimate of its own powers is for the present purpose disregarded. We have to postulate that such an estimate is formed, and upon that estimate, and the relations that it bears to cognitions of environmental circumstances, are founded the Emotions of the Organismally-initiated group.

Every activity of the organism requires for its fulfilment the existence of certain environmental circumstances. We cannot eat without food, nor drink without liquid, nor work without materials, nor converse without companions, nor take long walks on board ship, nor exercise any activity whatever unless the appropriate circumstances exist in the environment. The existence of these circumstances I call the *outlet* of the activity, and the action of the organism on the environment, and therefore also the corresponding feeling must, it is evident, largely depend on the quantitative relation that subsists between *activity* and *outlet*. The possible number of inter-relations between two independent variables, each of which may vary from zero to a maximum, is obviously infinite, but those of the two factors that we now consider may be collected for our purposes into a small number of groups. Outlet may be proportionate to activity, or there may be a margin of outlet beyond activity, or there may be a margin of activity beyond outlet; and these margins may be wide or narrow. These are all the relations that need concern us. Further, the relation that we consider may be that of a single activity to its outlet or that of a group or a large number of activities to their outlets. Taking first the general case, we find that where there is a large number of activities that are left unexercised for want of outlet, there arises in correspondence with this relation between the organism and the environment the massive feeling of Ennui, a feeling that becomes more voluminous the greater the number of activities that remain unsatisfied, and more intense the greater the discrepancy between activity and outlet. It matters not, so far as this feeling is concerned, how the absence of the outlet has been brought about. It may be due to a mode of life enforced merely by social penalties, or to the loss of the usual outlets and a want of plasticity in finding others, as in the retired man of business, in whom the margin of activity over outlet is but small and the feeling merely disagreeable; or it may be due to the incarceration of the individual in solitary confinement, when the deprivation of outlet for almost every activity augments the feeling of Ennui from a degree that is ordinarily mere Disagreeableness to one of intolerable Misery. When the absence or deficiency of outlet is prolonged, the feeling of Ennui merges into that of Discontent. On the other hand, when the outlets are ample, and sufficient to allow the free exercise of all activities, the corresponding feeling is one of Contentment. If we take the case of individual activities instead of that of activities in general, then, when outlet is absent or is deficient, the specialised feeling corresponding with this specialised relation is the feeling of Desire, a feeling which rises in intensity with the excess of any particular activity over its outlet. Should the activity from previous accumulation or other cause gush out so copiously on the occurrence of an outlet as to leave the organism exhausted, the negative feeling of Satiety results. When this condition extends to a large proportion of activities the individual is said to be *blasé*.

TABLE VII.

Class I. Sub-class II.: Self-conservative Emotions, Organismally-initiated.

Genus 4: Feelings corresponding with the relation of Activity to Outlet.

Feelings of Content and Discontent.

Activity exceeds Outlet	in the case of a single activity.	Desire.
	in the case of many activities.	Ennui.
	and the disproportion is prolonged.	Discontent.
Outlet is proportional to Activity	in the case of a single activity.	Satisfaction.
	in the case of many activities.	Contentment.
Activity has found Outlet in excess	in the case of a single activity.	Satiety.
	in the case of many activities.	*Blasé*ness.

The next genus of feelings corresponds with a relation of rather more specialised character. The outlet of an activity has been defined as the whole group of environmental conditions that are necessary for its fulfilment; and the feelings of the previous genus depended on the presence or absence of these conditions as a whole, and on the degree in which they as a whole were present. The feelings now under consideration depend on the relation which the activity of the organism bears, not to the conditions as a whole, but to a specialised part of them. When the main bulk of the conditions necessary for the exercise of any activity are cognised as existing in the environment, but a single one, or a small proportion of them, is wanting, the activity cannot, it is evident, be exercised, and the corresponding feeling of the previous genus will come into existence. But in addition to this feeling a somewhat more specialised feeling will arise, corresponding with the somewhat more special relation that is cognised. The absence of the condition or group of conditions is termed an *obstacle*; or if, as is common, the absence of the wanting condition is less prominent than the presence of some other condition to which the absence of the first is attributed, then the condition that is present is called the obstacle. In this, as in the last, case the feeling corresponds with the relation between two independent variables, and, as in that case, although the number of possible relations is infinitely great, yet they may be for our purposes arranged in a few groups each of which shades off on either hand into adjacent groups, and has corresponding feelings with corresponding graduations into neighbouring feelings.

TABLE VIII.

Class I. Sub-cl. II. : Self-conservative Emotions, Organismally-initiated.

Genus 5 : Feelings corresponding with the relation of Activity to Obstacle.

Feelings of Freedom and Restraint.

Obstacle is cognised as insignificant in comparison with Activity.	Freedom.
Obstacle is cognised as overwhelming in comparison with Activity.	Restraint.
Obstacle is cognised as great and Activity as great.	Determination.

Where obstacle and activity are both small it is evident that feeling will be inconspicuous, and hence to such feeling no name is applied.

Feelings of the two preceding genera correspond with the relation to environmental circumstances of an activity on the part of the organism, that is to say, of an action that is potential but need not be actual. We have now exhausted all the possible relations of activity of the organism as distinguished from its action. In the next genus of emotions the stage of interaction between the organism and the environment is carried a step further. They correspond with an action that is no longer potential but actual. There must be some *work done* upon the environment by the organism before feelings of this genus can come into existence. Still, however, the emotion corresponds, not necessarily with the relation that actually exists but only with that which is cognised, the cognition being in this case mainly a remembrance. When actual action of the organism upon the environment takes place, the organism forms an estimate of the amount of energy that is expended by it. How this estimate is formed, on what basis it rests, and how far it is correct, are immaterial to our present purpose. All that is required to justify the constitution of the next genus of feelings is the admission that such an estimate is formed, and this, I think, no one will deny. Let us call the amount of activity that is cognised as put forth by the organism in the performance of an action the *exertion* of the organism. Then the next class of feelings will correspond with the relation that the Exertion of the organism bears to the Effect produced in the environment.

TABLE IX.

CLASS I. Sub-cl. II. : Self-conservative Emotions, Organismally-initiated.

Genus 6: Feelings corresponding with the relation of Exertion to Effect.

Feelings of Power.

Exertion, compared with Effect, is cognised as	insignificant.	Power.
	slight.	Ease.
	considerable.	Difficulty.
	overwhelming.	Impotence.

Some comment upon this Table is rendered necessary by the fact that the terms used in naming these feelings are not always employed in the same sense. The feeling of Power, I have said, arises when the Exertion necessary to produce a given effect is cognised as insignificant in comparison with the Effect produced. Hence this emotion will, if this statement is correct, arise on the occasion of a single experience of this nature. But the emotion of Power, as ordinarily understood, is not, I think, that which corresponds with an isolated experience of this nature, but is the feeling of capability in general—the feeling which corresponds with a cognised ability to bring about not this or that particular effect, but great effects generally. Such a cognition can, it is obvious, only come into being by the combination of numerous particular cognitions; and, similarly, the general feeling results from the aggregation of many particular feelings of the same nature. Each such cognition—normally gained by an actual experience of power exerted and effect produced—is accompanied by a minor degree of the feeling that we call Power, and the outcome of many such experiences will be a feeling abstracted from any particular experience, more frequently rising into consciousness, more decided and more voluminous, which will be the feeling that more usually goes by this name. Of all occasions on which an effect is produced on the environment, those will be attended with the most insignificant amount of exertion on the part of the organism which are produced vicariously, that is to say, by others acting under the orders of the individual in whom the feeling occurs. In this way very great effects requiring the co-operation of numbers of men may be produced by an amount of exertion that is not only relatively but absolutely insignificant—by a word, a sign, a look. On such occasions the feeling of Power attains its maximum of intensity, and so great is the accession which the feeling gains in this way that the term is often used in substitution for the term Authority, which is properly only a particular case of Power.

The term Ease is somewhat ambiguous, in that it is applied not only, as many names of feeling are, to the corresponding phase of conduct—ease of execution—facility—which is the outward expression of the feeling here considered, but also to another phase of conduct, and through that to another feeling—that ease which is equivalent to *otium*. The context shows sufficiently clearly the sense in which the term is used here, a sense which, I think, is justifiable and convenient. The feeling occupies the same position towards that of Power that the feeling of Difficulty does towards that of Impotence.

The term Difficulty which is applied to the allied and contrary feeling is likewise ambiguous in that it is applied not only to the feeling which arises when considerable exertion is necessary to produce a given effect, but also to the circumstance in the environment which renders the exertion necessary. This ambiguity is not, however, likely to give rise to mistake. I am not sure that the term has been used before to connote the subjective state, but it seems to me undeniable that a distinct feeling arises in correspondence with the relation described, that this feeling lies between those of Power and Impotence, approaching nearer to the latter than to the former, and that it may fairly and appropriately be termed a feeling of Difficulty.

A more advanced stage of the action of the organism on the environment, and a more special relation between the two has now to be considered. An act of the organism is a movement for the achievement of an *end*. If the end is attained the act is successful: if not, it is a failure. The success or failure of an act is quite distinct from the effect produced on the environment by the act. The latter is an affair of quantity, the former concerns quality. If a man throws a stone at an object, the effect of his act, in the sense in which the word is used here, is the amount of movement imparted to the stone, and communicated to whatever the stone strikes; but the success or failure of the act depends on whether or no the stone strikes the particular object aimed at. The stone may be thrown a great distance with but little exertion and make a great smash by its fall, and in correspondence a feeling of Ease and even of Power may arise; yet, if it fails to hit the particular object aimed at, the act as a whole is a failure. For the feelings which attend success and failure in single acts no terms are more appropriate than the feelings of Success and of Failure, but for the feelings which correspond with the relation between these two phases of conduct, distinct names are in common use according well with the distinct character of the feelings.

TABLE X.

CLASS I. Sub-cl. II.: Self-conservative Emotions, Organismally-initiated.

Genus 7: Feelings corresponding with the relation of Success to Failure.

Successes are cognised as predominating over Failures	in important matters.	Self-Reliance.
	in small matters.	Complacency.
Failures are cognised as predominating over Successes	decidedly.	Depression.
	greatly.	Despondency.

With this genus is completed the examination of the feelings of Class I., and before passing on to the feelings of Class II., which correspond with interactions that affect the perpetuation of the race, it will be well to consider a few objections that may be made to the foregoing portion of the classification, and to indicate some cross-relationships that have been left unnoticed. To the feeling of Despondency has been assigned a place in the last genus of the second sub-class, while the feeling of Despair is placed in the first genus of the first sub-class; two feelings that are very closely akin are thus separated by the widest interval allowed by the limits of the Class. Feelings so similar as those of Failure and Defeat are as widely separated, and feelings of Gratification and Satisfaction, Hatred and Dislike, Fear and Alarm are placed in different genera. The classification may therefore seem open to the very objection that I have made to the classifications of my predecessors.

To such criticisms the reply is threefold, and when all the circumstances are considered the justification will, I trust, be found complete. In the first place, the names given to the feelings are necessarily more restricted in their meanings when used here than when employed in common discourse; and in restricting their meaning a certain neutral territory lying between two adjacent feelings, and usually ascribed indifferently to the one or the other, has been separated from both; and in this way the severance between two allied feelings has necessarily been made more complete by the clearer limitation of each of them. Then again it is to be remembered that this classification is based on the correspondence of feeling with action, and when actions approach one another in character the corresponding feelings must exhibit a similar alliance. It is true that Despair and Despondency have here a wide interval interposed between them although they are so closely akin; but consider the relations with which they correspond. If we turn back to the Tables in which they are described we find that Despair is the feeling corresponding with the relation to the organism of an agent of overwhelming power with which it has unsuccessfully contended; while Despondency is the feeling corresponding with the preponderance of defeats over successes. Manifestly these two relations are closely allied in nature, and if the feelings corresponding with them were not also closely allied, the classification would indeed be open to destructive criticism. The same will be found true of the other couples of feelings instanced above. So far, however, the defence only shifts the objection a step further back. The rejoinder may at once be made: How is it that actions acknowledged to be so closely akin are placed so widely apart in the classification? The answer to this is the same that was given to a similar objection anticipated as offered to the arrangement of the Antagonistic feelings—the impossibility of representing in serial order relationships so intricate as those subsisting among the feelings. Manifestly we are here in the presence of a cross-relationship among the larger groups similar to those found to exist within the group of Antagonisms, and illustrated by the relations demonstrable in a diagram of three dimensions. The natural proximity of two feelings belonging to different groups may be well illustrated by the diagram of the tree already utilised. Just as we see two branches jutting in opposite directions from a trunk, divide, sub-divide, and spread until the outermost twigs of one interlace with the outermost twigs of the other, and the leaves of the two branches are in contact, so the outlying feelings of any great group may be expected, as they have been found, to approximate more or less closely to the outlying feelings of other groups.

(To be concluded.)

III.—KANT HAS *NOT* ANSWERED HUME.

By Dr. J. Hutchison Stirling.

I.

I suppose there is no one in Germany at present, and scarcely anyone anywhere else, it may be, to whom, even on slight acquaintance with the subject, it is not *understood* that Kant has answered Hume: rather indeed that this, so to speak, is the least of it, and that Kant has not only answered but passed Hume; with simply a word, moreover, in the bygoing to intimate: 'I take your back, David Hume, merely as starting-ground to a leap—a leap into a new world—a new world of hitherto undiscovered metaphysic, of heretofore despaired-of philosophy'.

Now, be it as it may with this latter consideration (of a new metaphysic) in itself or its consequences, I for my part, after the most anxious and long-continued inquiries, am greatly disposed to doubt or deny the mere preliminary—the success of the start, the success of Kant as in opposition to Hume.

To decide the point, it will suggest itself as necessary, first of all, to ascertain what Hume's problem is, and then, second, what is Kant's answer.

Omitting quotations for the sake of space, we may just say at once that Hume's problem is simply that of *necessity*—the necessity of the connexion which we undoubtedly assume as always present in every instance of the relation of cause and effect. A *fire*, for example, is always followed by *heat* and *light*, but let us just say *light*. Now this duality of fire and light is an instance of the relation of cause and effect, and the proposition is that in this relation, or in the connexion between the cause and the effect, *necessity*—what we may call an element of necessity—is present. If we name the fire, as cause, A, and the light, as effect, B, then the relative general understanding asserted for us is, that B does not merely *follow* A, but that it *must* follow. AB, fire and light, are always AB, fire and light: they are never BA, light and fire. The duality AB, or of fire and light, is no mere succession, no mere sequence. I put my stick into the corner, and immediately thereafter I hear rain fall; but I am not entitled thereby to enunciate the enthymeme, *stat baculus in angulo, ergo pluit.* In the same way, that simple old man did see that the Goodwin sands only made their appearance *after* the erection of Tenterden steeple; but such mere *after* was not a causal *through*. No casual conjunction, as of stick and rain, steeple and sands, *is* a causal one: such are contingent only, not necessary. What are so conjoined are but separate facts that only happen to be so placed in time, simple successions, simple sequences in bare time. The one does not depend upon the other, and the one is not a consequent of the other: it merely follows the other and no more; it merely happens to be after the other, simply that and no more, just as though your reading of this line at this moment were followed by a knock at your door. In that case, if we called the one event, that of the reading, A, and the other event, that of the knock, B, I do not think that you or any one else would feel any disposition to call such AB a causal one, a necessary one. The duality AB, where A is a fire and B light, is one evidently very differently conditioned: it is so conditioned, namely, that A *must* be first, and B must be second; the light B never precedes but always follows the fire A; in a word, it is so conditioned that we call the one cause and the other effect, and that we assume a power, a force, a virtue, a quality in the cause by which the effect is necessitated to ensue.[1]

That is undoubtedly the state of the case, the nature of the facts as we first approach them; and it does not in any way belong to Hume's intention to deny this. Still it does belong to the intention of Hume, the intentional scepticism of Hume, *theoretically* to shake the usual or ordinary state of mind in which the facts concerned are present to us. *Practically*, this is not so. Hume directly affirms, "We infer a cause immediately from its effect; and this inference is not only a true species of reasoning, but the strongest of all others," and accordingly, he draws a distinction between the relation of causality as *naturally* viewed, and the same relation as *philosophically* viewed. Causation, he says, "as a natural relation produces union among our ideas, and we are thus able to reason upon it, and draw an inference from it". Nevertheless, philosophically or theoretically, it is his purpose, with the twinkle of sceptical mischief in his eye, to start such doubts and difficulties as may rather perplex us, or even, at least for the moment, shake our faith in some of the most implicit and important of our principles of reasoning hitherto. Hume's final aim, of course, is the destruction of what is to him superstition. If I bring men to doubt, he thinks, of what foundation is to be assigned to our reasonings from causation, or whether indeed any certainty can be assumed for such, surely it will be inevitable that the untenableness of that horrible superstition will immediately suggest itself. That this is his general state of mind, his whole mode of viewing and treating the subject immediately demonstrates. Take, for example, his accentuation of this, that "by means of that relation (of cause and effect) alone can we go beyond the evidence of our memory and senses". ✓ Here is a consideration at once to dumbfound and alarm us. What we actually feel, or what we remember to have actually felt, that alone we know, and that is all we know; for there is no power in existence to carry us beyond our memory and senses except causation alone, and that, with its foundation utterly shaken into perplexity and doubt, is a principle no longer to be depended upon! No wonder that not Reid alone, but all men of common sense, rose to the rescue, and that Hume, in consequence, was treated with considerable violence and injustice—in so far, at least, as what was honest in his inquiry (the question of necessity) was entirely overlooked and neglected. Hume, that is, as we have seen, does not deny causation as a principle of reasoning in itself or naturally legitimate; he only holds up that element of apodictic necessity that is thus implicitly assumed in it, and demands an explicit philosophical account of it. The action of Reid and the rest was rather a shout of execration and surprise that Hume should at all call in question a principle so momentous and a principle so self-evident. They refused to draw Hume's own distinction between his admission on the one hand, and his question on the other. NB To all that he might say in regard to never for a moment denying the legitimate *use* of the principle, they turned a deaf ear: and by vociferations in respect to the certainty, gravity, sanctity, divinity, of this undenied use, they drowned every word he might try to utter about a philosophical curiosity in reference to the source of the apodictic necessity which was understood in the relation. The sceptical result alone filled their whole souls, and entirely blinded them to the fact of the existence of a very remarkable and perfectly legitimate scientific problem. The sceptical corollaries apart then, Hume is really to be credited with an honest desire soberly to inquire into the philosophical or scientific foundation of the peculiar necessity in question. In fact, it was the doubt nascent in this one special case that, in all probability, gave rise in the end to the entire sceptical inquiry; while what it was that put him upon this doubt constitutes with Hume the absolute *principium*, the absolute ἀρχή, the absolute first germ, whether we take it as *principle* or as *beginning*.

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[1] Of course, the materials being prepared, there is first the light and then the fire; but to object here this—only another example of the relation before us—were simply *pour rire!*

Now, in general, the first of Hume, philosophically, was the study of Locke, than whom it is doubtful to me whether Hume knew, at least well, any philosopher else. Further, I am disposed to conjecture that what in Locke was specially suggestive for Hume lay abundantly in those, Locke's most original, striking, copious, and endlessly repeated considerations in regard to *substance*. In any point of view, the two ideas, substance and causality, lie at all times very near each other; and there are even expressions in Locke that, though blindly and unwittingly for him, bring both into the same light. I shall transcribe a few of these here, though by a long way not all.

(1) I shall begin with the most comprehensive relation, wherein all things that do or can exist are concerned, and that is the relation of cause and effect; the idea whereof, how derived from the two fountains of all our knowledge, sensation and reflection, I shall in the next place consider (*Essay*, ii., 25, 11). (2) General certainty is never to be found but in our ideas; whenever we go to seek it elsewhere in experiment or observations without us, our knowledge goes not beyond particulars (iv., 6, 16). (3) The simple ideas, united in the same subject, are yet perfectly distinct (ii., 2, 1). (4) In some of our ideas there are certain relations, habitudes and connexions so visibly included in the nature of the ideas themselves that we cannot conceive them separated from them by any power whatever. And in these only we are capable of certain and universal knowledge. Thus the idea of a right-lined triangle carries with it an equality of its angles to two right ones (iv., 3, 29). (5) We can know the truth and so may be certain in propositions that affirm something of another which is a necessary consequence of its precise complex idea, but not contained in it. As that the external angle of all triangles is bigger than either of the opposite internal angles (iv., 8, 8). (6) Were there now no circle existing anywhere in the world, yet the idea annexed to that name would not cease to be what it is (iii., 3, 19). (7) All the discourses of the mathematicians about the squaring of a circle, conic sections, or any other part of mathematics, concern not the existence of any of those figures; but their demonstrations which depend on their ideas are the same, whether there be any square or circle existing in the world or no (iv., 4, 8). (8) The idea of *substance* we neither have nor can have by *sensation* or *reflection*. Since, then, by those ways whereby other ideas are brought into our minds, this is not, we have no such clear idea at all; and therefore signify nothing by the word, but only an uncertain supposition of we know not what idea (i., 4, 18). (9) The obscure and indistinct, vague idea of thing or something is all that is left to the positive idea which has the relation of a support or substratum to modes or accidents; and thus the mind, from the positive simple ideas got by sensation and reflection, comes to the general relative idea of substance (ii., 2, 2, note). (10) Our ideas of the species of substances are nothing but certain collections of simple ideas united in one subject; for these, then, names stand (iv. 3, 9). (11) Such simple ideas carry with them no visible necessary connexion or incon-

sistency with any other simple ideas, whose co-existence with them we would inform ourselves about. Because the connexion between most simple ideas is unknown (*ibidem*, 10). (12) There is no discoverable connexion between any secondary quality and those primary qualities that it depends on (*ib.*, 12). (13) We can by no means conceive how any size, figure, or motion of any particles can possibly produce in us the idea of any colour, taste, or sound whatsoever; there is no conceivable connexion betwixt the one and the other (*ib.*, 13). (14) In vain, therefore, shall we endeavour to discover by our ideas (the only true way of certain and universal knowledge), what other ideas are to be found constantly joined with that of our complex idea of any substance; since we neither know the real constitution of the minute parts on which their qualities do depend; nor, did we know them, could we discover any necessary connexion between them. Our knowledge in all these inquiries reaches very little farther than our experience. We cannot know certainly any two ideas to co-exist any farther than experience by our senses informs us (*ib.*, 14). (15) As to the powers of substances to change the sensible qualities of other bodies, I doubt as to these whether our knowledge reaches much farther than our experience (*ib.*, 16). (16) We are ignorant of the several powers, efficacies and ways of operation whereby the effects which we daily see are produced (*ib.*, 24). (17) We cannot tell what effects they (bodies) will produce; nor when we see those effects can we so much as guess, much less know, their manner of production (*ib.*, 26). (18) Though causes work steadily, and effects constantly flow from them, yet, their connexions and dependencies being not discoverable in our ideas, we can have but an experimental knowledge of them. Several effects come every day within the notice of our senses, of which we have so far *sensitive* knowledge; but the causes, manner and certainty of production we must be content to be ignorant of. In these we can go no farther than particular experience informs us of matter of fact, and by analogy to guess what effects the like bodies are, upon other trials, like to produce (*ib.*, 29). (19) Some of our ideas have a natural correspondence and connexion with one another [as the mathematical]; besides this, there is another connexion of ideas wholly owing to chance or custom; ideas that are in themselves not at all akin, come to be so united in some men's minds that it is very hard to separate them, they always keep in company, and the one no sooner at any time comes into the understanding, but its associate appears with it (ii., 33, 5). (20) We cannot with certainty affirm that all men sleep by intervals, that no man can be nourished by wood or stones, that all men will be poisoned by hemlock. We must, in these and the like, appeal to trial in particular subjects, which can reach but a little way (iv., 6, 15). (21) God has annexed effects to motion which we can no way conceive motion able to produce (iv., 3, 6). (22) God has set some things in broad daylight, as he has given us some certain knowledge; but in the greatest part of our concernment he has afforded us only the twilight of probability. The faculty which God has given us to supply the want of clear and certain knowledge in cases where that cannot be had is judgment. Custom, habits, come at last to produce actions in us which often escape our observations; and, therefore, it is not so strange that our mind should often change the idea of its sensation into that of its judgment, and make one serve only to excite the other without our taking notice of it: we take that for the perception of our sensation which is an idea formed by our judgment (ii., 9, 10 and 9). (23) Not imagining how these simple ideas can subsist by themselves, we *accustom* ourselves to suppose some *substratum* wherein they do subsist, from which they result; which therefore we call *substance*. We call it by one name of *substance*, from the *custom* of supposing a *sub-*

stratum (ii., 23, 1, and note). (24) *Custom* a greater power than nature (i., 3, 35). (25) Cause and effect ; such correlative terms seem so nearly to belong one to another, and through *custom* do so readily chime and answer one another in people's memories that upon the naming of either of them, the thoughts are presently carried beyond the thing so named (ii., 25, 2). (26) When a countryman says the cold freezes water, though the word freezing seems to import some action, yet truly it signifies nothing but the effect, *viz.*, that water that was before fluid is become hard and consistent without containing any idea of the action whereby it is done (ii., 22, 11).

Few, it appears to me, will be able to read these extracts (the *Treatise* and the *Enquiry* being open before them) without having it forcibly borne in upon them, at all events for the moment, that Hume on the whole must have simply reproduced and repeated, in regard to causality, that whole course of considerations and that general attitude of thought which Locke, already in advance, had exhibited in regard to substantiality. In both what we may call the *fulcra* are precisely identical; and these are: (1) That the idea concerned can show for itself no correspondent voucher of sense; and (2) That its origin can only be referred to custom. But it will be well to point out the parallel a little more in detail.

NB

Locke, in the first quotation, terms causality the most comprehensive of all relations, while, whether as a principle of association or as a principle of inference, it is to Hume "the strongest of all others". In fact, it was precisely Hume's affair, his object being seen, to make causality no less. In the whole of the theoretical part of the *Treatise* in the first place, and of the *Enquiry* in the second, he has no purpose whatever, no thought, no idea in his mind but what centres in causality. Chapter after chapter, paragraph after paragraph only lead up to it. So much is this the case, indeed, that it is impossible to conceive of a clumsier stroke to one's own self than that which was aimed at Hume for his assumed inconsistency in usage of the principle as a law of suggestion. That causality should be considered, as in the *Essay*, "the most comprehensive relation, wherein all things that do or can exist, are concerned," and, as in the *Treatise*, the relation than which none "produces a stronger connexion," of the three principles of association "the most extensive," "not only a true species of reasoning, but the strongest of all others, and more convincing than when we interpose another idea to connect the two extremes" (syllogism, to wit)—that was accurately and precisely Hume's single desire. It was "by means of that relation alone that we could go beyond the evidence of our memory and senses";

it was on that relation alone that "all reasonings concerning matter of fact were founded"; and it was to the sapping of that relation alone that he meant to apply himself. Any *relation of ideas*, all that concerned scientific abstraction (as in mathematics), was a region and a curiosity apart; he could afford to neglect it; he could afford to leave it untouched and unmeddled with for the Virtuosi and Dilettanti in their closets; but matters of fact—ah! that was different—destroy any evidence for *them*, and then there was an end of Superstition with all its frippery of miracles and its inconvenient bigotry!

But there was no such evidence unless that of causality; and causality, to be sure, had a *natural* validity that, as natural, was of course authoritative. Still, what of that? Here, for all that, was still an opening for *logic*,—here, for all that, was precisely what *argument* had to lay its trenches against! That, very certainly, was, at least in the end, the mental condition of Hume. Of causality as a fact, of causality as (whenever and wherever it truly was) absolutely certain, absolutely infallible, Hume never had a doubt. He would have been only amused could he have seen his followers, Brown and the rest, all gravely, pedantically bearing in, and, on the operating table, solemnly opening out *mere succession empirically constant*—this, as the remarkable philosophical discovery of the illustrious David Hume, in regard to the true nature of that abstruse principle, causality! Certainly the origin of the *necessity* that lay in it interested him; for all cases of causality were still, evidently, but matters of fact, and as such, consequently, by rights adequate to no more than probability—certainly that interested him, and since there was *here* as little any original of sense for him, as there was *there* any original of sense for Locke, he was really quite as sincere as this latter in referring to the influence of custom; not happening to be checked, as Kant was, by the reflection that such necessity could not possibly rest merely on one's own customary experience—that it could not be subjective, but must be objective. This, I say, was, quite indubitably, the state of Hume's mind—a state of mind that could, of course, only mount into rapture with him, over the sceptical profits it was plain he could draw from it. And saying this for Hume, I may allow myself here to say something similar for Locke. This, namely, that it is quite absurd to suppose that Locke ever for an instant dreamed that "the being of substance had no other foundation but the fancies of men". At such a charge on the part of the Bishop of Worcester, he was simply indignant; and I have no doubt he would have been equally surprised and amused had he witnessed the supersubtle profundity of the Germans, who object it to him as "a manifest self-contradiction" to make substance the "work of our understanding," and yet give it "objective validity," or "expect the mind to subject itself to a world already in subjection to laws which are its own product". Locke never dreamed for himself such deeps of speculation as these —no, nor the glory of having perpetrated a conjuring trick even on the very "world"! In an object of experience there was for Locke a sense-original present for the idea of *substance* quite as much as there was a sense-original present in it for the idea of any *quality*, as whiteness, warmness, sweetness, &c. Only, the relation between original and copy did not seem so direct and definite in the one case as in the other. That was what Locke held in reality of substance, let him express himself as he might about the obscurity of the original to which the idea was to be referred, or the influence of custom in respect of it. For Locke there was really a sense-object, a sense-thing, a sense-substance, in the constitution of which lay the causes which were qualities for us. And, in point of fact, Locke had reason: it is quite as certain that there is an archetype in sense for the idea substance, as that there is similarly one for the idea quality. It is no more reasonable to object that you cannot find the *it* of an object than that you cannot find the *me* of a subject —my me, your me, say. Both are present *in* their qualities, and both are present *through* their qualities. That that should be *their* way is not a bit harder than that that of any quality should be *its*. How else can anything be than what it manifests itself to be? If this that I hold is not to be hard, smooth, sharp-edged, transparent, brittle, then neither is it to be a piece of glass, but simply nothing. And how am I to make nothing something unless just by this that I *make* it something, that is, that I *qualify* it? The juice and the pith constitute the substance of that apple, and they are not in any respect less real than the fragrance it exhales or the greenness it shows. Ah! it is profundity, it is subtlety, it is philosophy to entertain the doubt! As it is here not to know substance because of quality—whereby alone it can be known; so it is elsewhere not to know the universal because of the particular—on which it sits; and, again, not to know free-will because of the very motive that is just *it*. Why, it is only because I *know*—that externality, that I do not know it! We are deep nowadays. There are more spaces than space, more directions than *all* directions; parallel lines may meet; and there may be Arabies the blest where two times two make five!

But to return. I need hardly point out that the remainder of this quotation (1) from Locke might also be quite as well attributed to Hume. That has been already said—that for any light on causality, there could be no element appealed to but that of experience. Quotation (2) enunciates what is so prominent in Hume, the distinction between relations of ideas and matters of fact; while these latter, as particulars, are to both philosophers incompetent to universals. In (3) we have a point which, for the purpose of breaking up synthesis, connexion, appears perpetually in the *Treatise*, as (i., ii., v.), "every idea that is distinguishable is separable," &c. Hume's two classes of relations which, as elsewhere said, I am disposed to name *intrinsic* and *extrinsic*, and set side by side with Kant's two classes of categories, mathematical and dynamical, as well as the fact that the first class, "depending solely upon ideas," alone "concerns the objects of knowledge and certainty" (*T.* i., iii., i.)—this is accurately the import of (4); and there are additional illustrations to the same effect in (5), (6), (7), (14), and (19): Hume's phrase "though there never were a true circle or triangle in nature," &c., will be seen to be pretty well literally anticipated here. The quotations (8-18) inclusive, (20), (21), (26), offer to our view a whole body of expressions in regard not only to substance, but even to causality itself, that seem to be literal transcripts from the pages of Hume. The idea, obscure, vague, not due to any impression; no visible necessary connexion; no discoverable connexion between quality and quality; in vain shall we endeavour to discover by ideas; know not the real constitution of the minute parts; very little farther than experience; nor did we know, could we discover; ignorant of powers, efficacies, and ways of operation; cannot tell what effects, or guess, much less know, the manner of their production; connexions and dependencies not discoverable; may by analogy guess what effects the like bodies are like to produce in the future; cannot affirm that all men sleep by intervals, are poisoned by hemlock, or cannot be nourished by wood and stones; we only see the effect, not the mode of action:—all these phrases, taken just so, are quite as much Hume's as they are Locke's. Lastly, in the remaining quotations, Locke will be found to dwell on custom, and to refer to custom as a principle of explanation, quite as emphatically, and with quite the same significance as David Hume.

I think, then, we may be now allowed at least to turn our minds to Locke at any time that there is question of what suggested to Hume this his problem of causality. But, be its origin what it may, I shall now take it for granted that its general nature is understood, and the peculiar Humian point of it seen into. And it is in place here to remark that, apart from Kant, the peculiar nerve of this problem, what Hume specially meant by it, has been quite as much mistaken in Germany as in England itself. As much as this seems to me to be signally exemplified in the tenth volume (pp. 75 ff.) of the *Works* of Schelling (complete edition, just acquired).

"Hume's attacks," it is said there, "went almost exclusively against the objective validity of the causal law, of the axiom that all that happens has a cause. We unhesitatingly guide ourselves in all our actions, as in our judgments—nay, Hume, as a quite pragmatic or didactic historian that accounts for events from their causes, guides himself—according to this law. And, what is strangest, we ourselves apply this law, and see others apply it, without being properly conscious of the law. We apply it not in consequence of a scientific insight into it, but by nature and as it were instinctively; and so prove that there is a real principle within us which necessitates us to judge so and so. Accurately viewed, Hume has only proved that so universal a law, valid not only for all actual but for all possible cases, cannot derive from *experience*. Experience certainly can extend to nothing universal. But now it was taken for granted that all knowledge issues from the senses. And there remained, therefore, nothing for Hume but to declare the universality in the application of the law as a merely subjective manifestation, which was to be explained by a merely subjective accustomedness. 'After,' he says, 'having in innumerable cases seen constant succession,' &c. I shall not now dwell on this, that even an endlessly repeated succession of two events A and B would still not always produce the notion of cause and effect were this law not imposed upon us, independently of any external experience, by an internal necessity of our nature. (Even an invariable *post hoc* is not necessarily a *propter hoc;* there are even instances of *post hoc* not contingent, but in obedience to a rule, which we still see to be only *post* and not *propter*.) If we can certainly discriminate between the *post* and the *propter* in one set of cases, why not in all? I shall not now insist on this reflection, nor ask, as I might, whether for refutation of Hume's doubt such a huge apparatus as the *Kritik of Pure Reason* were precisely necessary. It is singular enough that this refutation has been found so difficult, as also that no one till this moment has made the quite simple remark that it is quite well possible from bare experience itself. Hume explains the law from accustomedness, but to every accustomedness there belongs a certain time. Hume, therefore, must concede not only to an individual but to the race a certain time during which it has always seen a certain event A to follow another event B, and so has formed at last the habit to consider the latter *necessary*. But just this, which Hume silently assumes and supposes himself able to assume, is not by any means to be assumed. For I am persuaded not one of us will be inclined to grant a time when the race judged not according to the law of cause and effect, and that Hume himself would concur. He would feel that the man from whom he had withdrawn the judgment according to cause and effect, would no longer appear a *man* to us. We may be perfectly sure, then, that the very first man on the very first day of his

> existence judged according to this principle, inasmuch as it belongs to human nature so to judge. The serpent in Eden took it for granted in Adam. A child in Arabian story, &c. But we require no such fiction for the refutation of Hume; for the child in the cradle, without custom and without lesson, turns itself in the direction of the sound it hears, with no other object than to see the cause, which, therefore, it presupposes. To judge, then, according to the law of cause and effect is imposed upon us by a necessity, independent not only of our will but even of our thought, and indeed in precedence of the latter. But what is independent of our will and thought that we term a real principle. It is therefore proved by experience itself that there is a real principle which, as it were, like a universal gravitation determinative of movement to the centre, similarly compels us to judge according to the law of cause and effect, as to think according to the law of contradiction."

These notes of Schelling date from the period of his residence at Munich, and were written certainly not earlier than 1827, possibly later even than the death of Hegel; and one cannot help expressing surprise that a man of so much genius, talent, acquirement as Schelling, and so late in life, should have manifested such fatal and fundamental ignorance, not only of the men, Kant, Hegel, Hume, Reid and others, but of the essential question itself, a question that had occasioned and conditioned the whole German movement.

As regards Hegel, for example, no man that understood him could have so explained the law of causality; he would surely have known that, after Hegel, it was impossible to speak of causality, or any such law, as a "*real* principle" in the sense of being a sort of innate principle, as it were, anatomically within us and independent of thought. To be quite unconscious, too, that this was nothing but the long exploded position of Reid and his fellows! As for Kant, the ignorance in his reference depends less, perhaps, on what is said than on what is not said. But let us for a moment just look at the intimations as they variously come.

How erroneous the first words are, we see at once; for we know now that it is a very strange account of the matter to say Hume denied the validity of the principle in use; and it is just the opposite of the truth, as his every word avouches, to opine that Hume did not derive the law from experience. Of course, Schelling is perfectly well aware of the difference between *propter hoc* and *post hoc;* but the very central blunder in his statement is the treating of the law as a mere "internal necessity of our nature". Nor can anything well be simpler than at this time of day to refute Hume by that extraordinary reference to experience—Adam and the serpent, the baby in the cradle, &c.! That the latter should be found to turn itself in the direction of the sound will hardly explain the apodictic necessity of the law, which is all that we wish explained. Hume never for a moment doubted that causality was a "*real* principle"; but the whole relative work he set himself had its motive in him because of nothing but his conviction that causality was not, and could not be, independent of thought. It is really difficult to understand how a Schelling could palm upon himself such uninitiated and inapplicable crudities. But these crudities may be now safely left to the reader himself to particularise.

Perhaps now, then, we may take it for granted that what is meant by necessity is, as regards the law of causality, sufficiently understood. Shortly to say it, it is a fact that there can be no effect without a cause, that a cause must originate its effect, or that between the cause A and the effect B the connexion is a necessary one. If the duality AB is a causal one, then that duality must *so* present itself: A must precede and B must follow. At any time A is, B ensues; or B cannot be without A preceding it. The bond, the tie, between A and B is a necessary one. Kindle a fire and it is followed by light and heat. The sun rising, we have day; and setting, we have night. A cloud interposing, there is a shadow cast. Rain precedes the flood in the river. Cold freezes water, and heat melts ice, or converts water into steam. Salt dissolves in the glass, and sugar in the cup. Shut your shutters and you exclude the day-light. Turn off your gas, and the room is in darkness; or just blow your candle out, and observe the result.

All these are instances of causality, and no one can doubt that in each case the *result*, that is, the effect that follows, is a necessity of the case itself. Now this was the question that Hume put—whence this necessity? is there any reason we can give for it? when we see the necessity can we see also the scientific ground on which it rests, and by which it is as plain to our understandings as, so to speak, it is, or at least seems, to our senses? In a word, can we tell why it is *necessary* that an effect should always have a cause? That the law obtains, that the law actually is, that the law *legitimately* is, and that it is precisely that law which enables us to arrive at the enormous complex of knowledge, scientific and other, as it exists now, I have already quoted Hume's own words, not in admission only, but in unmistakable and even emphatic affirmation and assertion. But what he wants to have explained, what he wants light upon is—the necessity. "Shall we then rest contented," he says (*T.*, i., iii., ii.), "with these two relations of contiguity and succession, as affording a complete idea of causation? By no means" (he continues). "An object may be contiguous and prior to another, without being considered as its cause. There is also a *necessary connexion* to be taken into consideration . . . I turn the object on all sides in order to discover the nature of this necessary connexion, and find the impression or impressions from which its idea may be derived." It is a "question concerning the nature of that *necessary connexion* which enters into our ideas of cause and effect". In that passage of his *Essays*, too, where it would seem to Reid, Gregory, and pretty well to Hamilton also, that Hume is asleep *(aliquando bonus dormitat Humius*, see Reid's *Works*, pp. 79 and 83), Hume is in reality perfectly wide-awake, and is only asking them, though a little involvedly—rather, indeed, challenging them, them and anybody else, to *explain* the *necessity*.

This, then, is the angle of the inquiry; and surely now once for all, in all plainness. Let us next see equally plainly what it was that occasioned to Hume—nay, that still occasions to us—the difficulty of an answer.

This difficulty lies in the materials in which the law of causality presents itself. These materials are always *matters of fact;* and matters of fact are, simply as matters of fact, incompetent to *necessity*: they never transcend *probability*. Or, as we may say it otherwise, the law of causality presents itself always in the objects of experience, and objects of experience are never equal to necessity. Experience itself is always inadequate to necessity; it always falls short of it. As an example of the presence of necessity, and of a necessity which we can see into, understand, and satisfy ourselves about, there are the so-called *relations of ideas*. It is on such relations that all the sciences connected with quantity, as geometry, arithmetic, &c., are founded. We do not require to take the thing in hand, and actually finger the fact, to find out what is the state of the case with it—we require simply to be told that 2 and 2 are 4, that 3 fives are 15, &c., in order to see into the truth, and the necessary truth, of what is said. Similarly, we simply *see* that a straight line between any two points must be there the shortest possible; or that parallel lines, being parallel—and that means *always equally distant* the one from the other—can never meet, let them be continued even into infinity; or that the angles at the base of an isosceles triangle are equal, the one to the other; the three angles of any triangle equal to two right angles; the square of the hypotenuse of any right-angled triangle equal to the squares of the sides, &c., &c. All these truths depend on relations of ideas, and these are simply *seen* to be *necessary—seen*, that is, to be *not possibly otherwise*. The relation is such that, the moment it is understood, the intellectual result is intellectually perceived. I say intellectually perceived, or intellectually seen. That anything should be sensuously perceived, sensuously seen, guarantees the existence of that thing as a fact, but it is no guarantee of necessity in any respect. ✓That element, necessity, is an article of intellectual and not of sensuous perception. In regard to 2 and 2 being 4, for example, or 3 fives 15, if I were actually to take up each unit of the sum asserted to result in either case, and number these units just as they come—*one, two, three, four*, &c.—I should sensuously see, or sensuously perceive, the result just to *be* as announced. I should be able to say only, I have counted the units and I find their number to be what they are announced to be, but no more. If I were to add, "And, in effect, *from the state of the case*, the fact *must* be so"; then I should have added—*intellectual insight into a relation of ideas*. In like manner, were I to draw *several* lines between two points, and then measure them, finding so that the straight line actually was the shortest, the perception concerned would be only one of sense; while from mere relations of ideas to perceive that it *must* be so, would be one of intellect. In the remaining cases, likewise, I might actually measure the three angles in one or more triangles, the respective squares once or oftener, &c., &c.; but the result of such measurement would be simply to *find* the state of the case, in each instance, *so*. To allege measurement as my reason for asserting the result, would be to state a fact just found, a fact just sensuously seen, not a relation of ideas intellectually perceived.

Such truths as these quantitative ones can evidently, therefore, be regarded in both ways, now sensuously, and again intellectually. But there are a great many truths that admit of being regarded only in one way. Some intellectually alone, and some sensuously alone. Suppose I were to establish the truth of the immortality of the soul, or that of the existence of God, I could not bring forward, in either case, actual sensible perception of actual sensible fact. Even to prove the existence of the soul itself, I cannot put an actual soul into anybody's hands, or hold up an actual soul to anybody's eyes. So God—let me prove as I may, I cannot *show* God. Nay, even in much that is material, we are precisely similarly situated: who, for example, will show me an atom or put an atom into my hands? Proof in regard to the soul, or in regard to God, consists in argument from facts, and proof in regard to atoms, or in regard to sulphur in the sun, or sodium in Sirius, consists, precisely similarly, *in argument from facts.* I cannot show the sulphur or the sodium; I can only show the facts I argue from; and just such facts I show in the preceding cases.

These, then, are truths that may be intellectually seen, but never sensuously. As regards truths, again, that can be only sensuously seen or perceived, these are the most numerous of all. I see that the leopard has spots, the tiger stripes, the lion a mane, the elephant a trunk, the camel a hump, the ox horns, the horse hoofs, &c.; or that milk is white, grass green, the blood red, the sky blue, gold yellow, a negro black, &c.; or that wood is light, lead heavy, &c.; or that glass is transparent, stone opaque, &c. But I do not see that the leopard *must* have spots, that grass *must* be green, that a stone *must* be opaque, &c. I only see that the one and the other object actually *is* so and so; never that it *must* be so and so. I see *what* the fact *is;* but I do not see any *reason* that *necessitates* it to be as it is. It would be no contradiction if, in each instance, I found the state of the case quite otherwise, glass not transparent, a stone not opaque, &c.

Now, as the former kind of truths, the intellectual ones, were said to be, or to depend on, relations of ideas, the latter kind of truths, the sensuous or, as you may prefer to name them, sensible ones, are called *matters of fact.* If I say the Thames will flow under London Bridge to-morrow, everybody will admit that I only predict what will as good as certainly prove true. Still everyone will see that it is just possible the Thames may not continue in its usual channel and so flow under London Bridge to-morrow. What is spoken of is simply a matter of fact that is seen so and so to-day, but may be seen quite otherwise to-morrow: it does not depend so on a relation of ideas that to assert the contrary would shock us as an evident contradiction. The possible not-flowing of the Thames in the situation named, is no contradiction of a necessary truth; but that a straight line is not the shortest, or that parallel lines eventually *will* meet: these are contradictions which shock the mind in the mere contemplation of the relations of ideas lying intellectually before it. Say, the diamond scratches glass, and nothing else will, you only state what you see: you are aware of no necessity in the fact that explains how it is as it is, and could not be otherwise. There is a contingent fact to the senses, not an eternal intellectual truth to the intellect.

Now on what level is the law of causality? Why, evidently at once, it is a mere mundane matter. Fire and heat, the sun and light, a cloud and shadow, rain and flood, cold and ice, shutters and darkness, &c.,—these are all matters of fact and not relations of ideas. It is just a fact that the fire gives heat, the sun light, the clouds shadows, the rain floods, cold ice, shutters darkness, &c. Why, then —and this is the whole problem—in such cases do we treat mere matters of fact as relations of ideas, and say that the connexion is not one just found to be so and so by inspection of sense, but that it is one necessary, with a necessity as certain, sure, and irresistible as is that of any example whatever of the necessary relation of ideas? The effect must have a cause; no change whatever but has a reason.

Hume, now, admitted all this; and the sole burden of his challenge was the origin of the necessity that we undoubtedly assume to be present. Why do we say, not that every change, simply as we happen to *see*, *has* a cause, but that every change, as assuredly we happen *not* to see, *must* have a cause? I say in this latter case, as we happen *not* to see; for that is precisely the contention of Hume; and there is no doubt whatever that he fairly believed it. We do *not* see, he not only said but thought, the reason, the ground, on or in consequence of which we ascribe *necessary connexion* to the cause and its effect. Or, he said, if *you* see it—if you, unlike myself, do see that ground, that reason, that secret tie that binds the effect to its cause, then I challenge you to produce it.

Of course, it was but labour lost, in default of an answer, to *shout*—to shout about the indispensable importance of the principle, the absolute necessity of the principle, the absolute certainty of the existence and validity of the principle. Hume knew all that; Hume, once for all, admitted all that. It was simply preposterous to hold up in objection to Hume precisely what he himself, first of all, held up in objection, as it were, to his own self. But, really, one must find such action on the part of Hume's opponents a very venial one, not only in view of the tremendous significance of the principle at stake, but simply when we see Schelling—after all that, and *who* was all that—raise, in these late, and very late, days at Munich, the same cry, identically the same cry, as was raised, more than "sixty years" before that, by Reid, to say nothing of Beattie, Oswald and the rest, the cry of a fact, a fact, an ultimate fact, and so ——!

Hume, then, failing to perceive any general principle which made it clear to the understanding itself *why* we attribute necessity to the causal relation, was of course driven to reflect. We cannot say for certain that Locke assisted him in this; but we undoubtedly can say for certain that the course of his reflections on causality exhibits a striking resemblance to that of those of Locke on the parallel notion of substance. Here, however, we only recall this. For one thing, the reflections of both the one and the other terminated identically in custom, habit.

This, then, is the *rationale* of Hume. He grants causality to be a natural, legitimate, and most powerful principle of reasoning; he admits the element of necessity to be a most special, proper, and peculiar characteristic of it; but, totally excluded, as he unmisdoubtingly believes, from every reference to relations of ideas, he can only explain that necessity as the result of habit in consequence of repetitions in experience.

Or, to put it all in sum: Matters of fact are incompetent to necessity. But causality is a matter of fact. Why then do we assume, as we undoubtedly do, the existence in it of a necessary connexion? That is the question. And the answer is this. The necessity assumed is not, and in a matter of fact cannot possibly be, a necessity of *reason* (what is intuitively or demonstratively *seen*); it is only a necessity of *feeling*, and it is due to *custom*. And this, it is hoped, is a reduction of the argumentation to its ultimate nerve.

We shall not discuss now that apparent inconsistency on the part of Hume in mixing up with his suggestions in regard to habit others which would seem to place the origin of the causal rigour in an instinct implanted in us by nature herself. There are strong statements to this effect no less than three times in the course of the *Enquiry;* and, reading them alone, the temptation is to assert of Hume that he attributed the causal virtue as certainly to an instinct implanted by nature, as ever Reid or any of his followers did to an instinct vouchsafed to us by the Author of our being. Certainly it is sufficiently strange that they failed to acknowledge this, but preferred to clamour always about the enormity of a denial of the principle at all—a denial that Hume, as so often said (despite Schelling or whoever else), never made nor dreamed of making. Still there was no reason in anything he perceived or in anything he admitted why Hume, if he were so minded, should not drive his sceptical wedge, and he had no hesitation there. He was always, however, at least, good humoured, well-intentioned on the whole, yielding only to a little mischief at times, in view of that *monstrum horrendum, infandum, impurum,* Superstition! But of this, or other such matter, no further now: we pass to Kant.

(To be concluded.)

IV.—DISCUSSION.

SEPARATION OF QUESTIONS IN PHILOSOPHY.

By Rev. W. L. Davidson.

The keeping separate of distinct but allied questions in philosophy is a point of the utmost importance, both for the expositor and for the critic. It means clearness and the absence of confusion, in the one; it is the greatest safeguard against the worst of logical fallacies, *ignoratio elenchi*, in the other. The process is essentially Definition. It is the discriminating of things that tend to run together; the drawing of boundary lines, with a firm and steady hand, in this direction and in that.

Yet there is nothing commoner than to find woful laxity in this respect, and, consequently, interminable misunderstanding and dispute. Prof. Sidgwick, in his *Methods of Ethics*, and Mr. Balfour, in his *Defence of Philosophic Doubt*, have both shown us somewhat of the magnitude of the evil; and those who have criticised the critics have not been slow with their *Tu quoque* in return. Nor is there any department of philosophy where the evil does not reign. Logic, psychology, ethics all come under its influence, and we need hardly mention metaphysics and ontology.

It may not be amiss, then, if we here follow out the subject a little; and, as our chief object is to exhibit the working of Logical Method, we shall best perhaps put the matter in the form of a few leading examples.

I.

A commencement may fitly enough be made with questions that range themselves around a single conception in one distinct province of philosophy: and, as Metaphysics offers a tempting field, let us begin with the notion of Cause.

The first question to be asked and to be settled in connexion with Cause is,—What is the *import* of the notion? where shall we find its differentia? Much depends upon our determination here, and upon the persistence with which we abide by it. For Cause may stand for at least three different things. It may stand for priority or antecedence; it may be taken in the old Stoical sense (familiarised to the West by Cicero) of efficiency or power; it may be regarded as the sum total of conditions—the aggregate of concauses, positive and negative (the presence of such and such things *plus* the absence of such and such hindrances or impediments)—emphasised by Mill. And, according as we strictly adhere to any one of these conceptions or pass indifferently from one to the other, we shall maintain clearness in our reasoning or involve ourselves in ambiguity and mist.

A specimen of the prevalent confusion on this preliminary point may be found in the Free-will controversy. Much of the unsatisfactoriness that usually attaches to the conduct of the discussion may be explained by the circumstance that disputants on both sides take for granted that there is nothing equivocal in the leading question, "Are motives causes?"—whereas the issue greatly turns on the ambiguous word "Cause," and the answer (whether affirmative or negative) means one thing or another according as the term is interpreted in this way or in that. Thus, are we to understand by "cause" Mill's sum-total of conditions? Then, motive must be regarded as the *whole* of what at any particular moment determines choice, and the common distinction of external and internal motives (on which the difficulty really hinges) is seen at once to be fallacious and misleading, and the free-will puzzle itself becomes simplified to a great degree. Are we, on the other hand, to take the abstract and analytic view of cause? are we to accept it as the synonym of efficiency or power? Then, the distinction between external and internal motives—between the prompting force of things without us and the nature, laws, and principles of the world within—becomes indispensable, and the free-will problem can hardly be else than an enigma. Failure or success in the solution much depends upon the start we make, and the start is in great measure conditioned by our conception of causation.

A cognate confusion is seen when cause is identified with "ground" or "reason": a confusion most conspicuous in the case of beliefs. A man believes so and so, and, in justification, regards it as sufficient to adduce the cause of his belief—to state how it originated, under what conditions it was produced. Yet the cause is one thing, the ground or reason is quite another. The latter is wholly rational, and commends itself to our deliberate acceptance; the former may be altogether irrational, and a knowledge of it may lead to the rejection of that which it originated. A cause *explains*, a reason *justifies;* and we miss the point if we offer the one when the other is required.

After import comes *origin*. We have now to settle, whether the conception is derived from volition, or whether we obtain it from experiences of succession; and, if this last, whether physical or psychical succession is the proper type. Rightly also may be raised the question, whether, if we derive the conception from mental experiences, it is legitimate to extend it to the outward world at all. But, while anthropomorphism may thus be discussed—indeed *must* be discussed, if the issue is to be made at all definite,—the problem must not so be stated as to convey the impression that it is possible for man to gain knowledge which stands out of all relation to himself. It is pure nonsense to inquire, What is Cause apart from, and unrelated to, the human intelligence? If we could solve this puzzle, we should accomplish the wonderful feat of both being and not being man at the same time.

We are next introduced to the *principle* of causality. The law of Causation—what is it, and how best may it be expressed? No doubt, our answer will most likely follow the attitude we assume with regard to the notion; but not necessarily so. The two inquiries are closely related, but they are by no means identical (any more than the import and the origin of the notion are identical); and only confusion results if we be not careful to separate the treatment. Suppose, then, that we accept the doctrine that a cause is the sum-total of conditions; then the formula consistent with this position is, "Every effect has *its* cause". We refuse to put it in the indefinite form, "has *a* cause," because, on the special supposition, there can be only one cause capable of producing—or more strictly of *issuing in*—an effect; and we express the law as an identical proposition, because effect and cause are only different aspects of the same thing. If, on the other hand, we take cause as the equivalent of agent or producer, then our principle will assume the form, "Every effect has a cause," or "Everything that begins to be is the result of something adequate to its production". The proposition is still in reality a verbal one; but, by using the indefinite "a" or "something," cognisance is taken of the fact that there may be a plurality of causes, or that more than one cause may produce the same effect. Tautology is avoided only when we express the law in terms of antecedence; and then our view of the notion is the first of the three above referred to.

But part of the difficulty of expressing the formula has reference to the causal nexus. Is the simple statement of the *fact* sufficient, or do we need to introduce the circumstance of *necessity?* Does "has" or "is" give the whole case, or is "must" indispensable? This is a question that affects the principle, but has not relevance when we simply regard the notion. It may be argued indeed in connexion with genesis (to which we shall advert presently), but its natural place is previous to that discussion; for, as matter of fact, we find that our view of the nature and signification of the principle is more likely to determine our doctrine of genesis than our theory of genesis to shape our view of the principle. Hence again the necessity of keeping the problems scrupulously apart, and of giving them a separate handling. If it be so that cause and effect are relative and correlative, then we can see at once that the necessary union is precisely that which exists between correlatives in general. It is nothing more than given the one—and the other too is given: and there is no greater sense in saying, "Every effect *must* have a cause," than in saying, "Every height *must* have a hollow," or "Every parent *must* have a child".

It is also in place here to ask, What is the relation between the principle of Causality and the (teleological) principle of Design? Is the latter merely a particular application of the former; and, if so, may not the mode of expressing the one suggest the correct form of expression for the other? If "Design implies a designer" is adequate for the teleologist, is there anything inadequate in the corresponding form for the metaphysician, "Effect implies a Cause"? If the nexus in the first case is acknowledged to be that of implication, need we suppose it to be anything different in the second?

But now, fourthly, comes up the question of *genesis*. The points involved are similar to those noted under the origin of the notion, but with a difference; and it is this circumstance of a difference that necessitates our sundering the problems. We have here, of course, the alternative of Experience or Intuition; but if we accept the first of these alternatives, we have not only to account for men's firm belief in the uniformity of Causation, we have also to show whether this belief is legitimate or illegitimate. Hume, as is well known, found the key in Custom; but he thought the very fact of this discovery proved the illegitimacy of the product. The *non-sequitur* has not escaped the notice of his successors; and there are few truths more worth insisting upon than this—that an experiential origin to knowledge does not necessarily imply uncertainty and error, much less treachery and deceit.

At this point also comes up consideration of proof. What is the evidence for the principle? how best may it be established? If we have here a "first principle," then Intuition will be sufficient criterion, and both the possibility and the need of proof will be denied. But if, in face of the circumstance that there is no unanimity among philosophers either as to the correct expression of the formula or as to the range of its application or indeed as to any other point connected with it, we have difficulty in accepting this solution of the problem,—then, proof of some sort is imperative, and to refuse to meet this requirement is tantamount to a confession of impotence.

The fifth point confronts us with the *range* of Causation. Does it hold simply in the external world, among the objects and events of Nature; or does its sway embrace the region of Mind as well? Is the whole of nature and the whole of mind included; or is a portion of both or of either to be exempted from its operation? We now inevitably touch the subject of miracles and of free-will: but, whatever be the range we allow the principle, the point to be particularly observed is, that our decision need not affect either our statement of the law or our view of the notion. The law may hold and be valid in the physical world, and we may regulate our lives in accordance with it, whatever be our belief as to the miraculous and the supernatural; and philosophers who trace their conception of Cause to Will are precisely those who are most likely to deny the strict operation of the causal law in the sphere of volition. The question of range is altogether a separate problem, and must not be mixed up either with that respecting the import of the notion or with that respecting the meaning and mode of expressing the principle.

Here, then, are no fewer than five questions (or sets of questions) all relating to the same subject, yet each distinct and possessing a value and position of its own. Nor can we, from knowing a writer's solution of one of them, infallibly divine his real attitude in relation to the remainder. Many, like Aristotle and the ancients generally, never handled the principle or law at all: it was mainly in the Latin world that there rose a clear view of the notion. Many, again, like Locke, have accepted the Ciceronian definition of the notion ("A cause is an efficient: we are not, therefore, to conceive of it as though it were a bare antecedent, but as an efficient antecedent"), while they have traced its origin to "the notice that our senses take of the constant vicissitude of things"; in other words, to experience of the world without us. Many, like Cousin, find the origin of cause in self-consciousness or will, while they regard the principle as something existing from the first potentially in the mind, to be afterwards called forth by experience. And many preach the influence of motives in determining action with all the vigour of Necessitarians, who yet refuse to admit that cause and motive are generically the same. The confusion, indeed, is something appalling, and is not equalled perhaps in any other province—save that of Perception. The requirements of logical method have been lamentably neglected, and the resulting inconsistencies and incoherence are simply inevitable.

Reference has just been made to Perception. Well-trodden ground need not be re-traversed; but two errors are particularly rife at the present moment, a brief allusion to which may not be inappropriate. One is, the mixing up of the problem of external perception with that other and entirely different problem as to the constitution of the human mind; and the other has reference to the Experientialist's idealism and his philosophical method.

As to the first of these, it is common enough to find the question of external perception argued as though it were the question of Spiritualism *versus* Materialism; and the result is simply that which might be expected. "What is the essence of Mind?" is an inquiry of the utmost interest and importance; but determine it in any way you please, and we have not thereby solved the question of Perception; while, on the other hand, our solution of this does not necessarily implicate one particular view of Mind, and the attempt to render the implication necessary is fraught with baneful consequences.

So with the second point. The Physicist and the Experiential Idealist (we are told, and told correctly) are to be classed together; for the method of the one is the method of the other, and the two have fundamental principles in common. But the Matter of the physicist is something external and independent, and an object of immediate cognition; the external world of the idealist is neither external (in the abstract sense of that term) nor independent, and what we immediately cognise is states of consciousness. Therefore (it is argued), Empirical Science is here in contradiction of Experiential Philosophy; and the implication of course is—so much the worse for Philosophy. The rejoinder is obvious enough. The realism of the physicist is precisely that of the practical man, and, if so, has no *special* bearing whatever on the philosophical position. Now it has been proved, and is generally admitted, that for *practical* purposes the realism of the plain man or of common sense is equally valid for realist and idealist alike. The attitude of the physicist, therefore, is neither more nor less inconsistent with that of the idealist than is the attitude of the plain man or of the idealist himself when he is dealing with practical affairs. The fallacy is at bottom this:—Because the physicist and the experiential philosopher agree in method and in certain other respects, therefore they agree in everything. It is forgotten that the two have different ends in view; and that this difference of end removes the point of the objection and explains the seeming opposition.

If now we turn from Metaphysics to Ethics, we shall find examples abundant in all directions. We have an instance in the perpetual confusing of the *ethical* with the *religious* sanction, and another in the mixing up of the ideal of ethical doctrine with the doctrine as it actually exists, and still another in the tendency to ignore the discrimination between End and Motive. Yet, who that considers it does not see that ethics and religion are two separate things, and that ethics *de facto* is by no means identical with ethics *de jure*, while the end of an action is very far from being synonymous with the motive of it? It is the "end" of conduct that gives us the test, standard or criterion of it and that determines its absolute value; it is the "motive" that constitutes the moral sanction. It is one thing to ask, Do actions tend simply to the individual's good, or have they reference to the general welfare? Is self the centre and the measure of them, or do they go beyond self and embrace other selves? Are they self-regarding or extra-regarding, interested or disinterested, personal or benevolent, egoistic or altruistic? It is quite another thing to inquire, Whether they are prompted by a regard for duty, or by desire of pleasure? by fear of punishment or by longing for reward?

But, perhaps, as good a case as any is seen in the group of questions that range themselves around the central ethical conception, Virtue. As with Cause, so here. First comes the determination of the notion, then the consideration of its origin. The difficulties attaching to the notion are somewhat peculiar, arising partly from the circumstance that virtue as an *act* must be distinguished from virtue as a *habit*, and partly from the circumstance that Virtue must be clearly discriminated from Duty. Regarded as an act, the essence of virtue is self-sacrifice, self-abnegation, self-surrender. But self-sacrifice has no meaning except on the supposition of contending or opposing forces : it is essentially a conflict and a victory. And, as the conflicting forces in human nature are, in the last analysis, two in number—selfishness and unselfishness,—Virtue is heroic successful resistance of solicitations to selfishness ; a heroism, moreover, which costs us effort, which has merit attaching to it, which we admire and praise, but which we cannot exact as a matter of strict obligation. Antagonism and effort, on the other hand, disappear when virtue is considered as a formed habit ; for it is now the product of repetition, and repetition begets facility and ease and creates in us a disposition towards the particular class of actions : nevertheless, merit, praise and admiration still remain. In like manner, Virtue is not synonymous with Duty. If duty is "what is due," it is that which we may lawfully claim and enforce (*officium* as opposed to *beneficium*), and the correlative of "duties" is "rights". Neither antagonism, therefore, nor merit is an essential characteristic here ; for, while we punish or blame a man for neglect of duty, we do not praise or reward him for the discharge of it. To Virtue alone are praise and reward, admiration and esteem confined : there alone does the conjunction properly obtain, εἴ τις ἀρετὴ καὶ εἴ τις ἔπαινος—"if there be any virtue, if there be any praise".

Now, if clearness as to the notion is a first requisite for profitable discussion, confusion as to the notion is the first observable peculiarity in English ethical disquisitions. Thus Butler, in his *Dissertation*, nowhere lets us know what exactly he understands by Virtue, although Virtue is the subject of which he is specially treating. The nearest approach to precision is when he sets it down as "justice, veracity, and regard to common good". This is a definition by enumeration of particulars ; but neither are the particulars exhausted, nor is the essence of the thing defined herein declared. Other things besides justice, veracity and benevolence are species of Virtue ; and not all just, honest or benevolent conduct is virtuous. Thus, benevolence, if it is simply the natural outflow of an easy, amiable and humane temperament, has nothing of virtuous attaching to it ; neither are we praised for speaking the truth when there is no temptation to mendacity, or for doing justly when injustice is beyond our reach. Taken generally, "mere absence of crime—where no possibility of crime could be found—does not constitute virtue ; and without temptation mere innocence has no merit". True, indeed, each and all of Butler's particulars may *under certain circumstances* rise to the height of Virtue, and so may others not included in the summary (such as mercy and humility) ; but it is just this peculiarity of the circumstances that gives us the defining characteristic, and the characteristic is, that here we have unselfishness or self-sacrifice displayed, and, where unselfishness is wanting, we have not Virtue. Had this been observed, it would have spared us the indiscriminate mixing up of virtue, moral rectitude and duty that disfigures the *Dissertation*, and it would also have given additional point to the discussion about the Moral Faculty.

Similarly, apart from clearness as to the notion, no definite result can ever be reached as to the competence of Virtue to stand for the ultimate ethical end. So long as leading terms like Duty, Obligation, Virtue are undifferentiated, dispute must needs be interminable; it is only when a sharp and consistent separation is made that a positive and definite conclusion can be looked for.

After the determination of content may be taken up the question of origin; and this, like the other, must be argued on its own independent basis. Here too emerges the question of *dignity*, and it is legitimate to inquire how our view of the one affects our view of the other. One thing, however, is altogether illegitimate, and that is, to take for granted that an experiential origin is *ipso facto* derogatory, and that "derivative" and "degraded" are in this connexion synonymous terms.

A step further, and we are confronted by the relation between Virtue and Knowledge. This we isolate, not simply because of the historical importance of the question (dating as it does from Socrates), but also, and more especially, because of its great significance as bearing on life and practice. The question itself, however, assumes a variety of aspects, according to the meaning we attach to "knowledge" and to "relation". Is the knowledge thought of identical with intellectual enlightenment; or shall we restrict it to knowledge of the consequences of actions (effects on self, on others, or on both); or does it signify consciousness of what, in any given situation, is the right course to pursue; or is it to be taken as equivalent to wide experience and general culture? In none of these cases perhaps is it proper to say, without qualification, that "knowledge is virtue"[1]; but in each case it can be shown that the connexion between virtue and knowledge is very intimate, and every aspect of it presses itself upon our notice. Again, we emphasise "relation," and we ask—Is knowledge that which stimulates virtue when it is feeble?

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[1] Perhaps it is worth observing that the Socratic dictum that "virtue is knowledge," or, as otherwise expressed in the *Protagoras*, that "no one errs willingly,"—is differently interpreted according as we view it in the light of "the choice of Hercules," or in the light of the teaching of certain other parts of the *Memorabilia* and of certain of the Platonic dialogues, or in the light of such a dialogue as the *Phædo*. In the first case, it preaches pure Egoistic Hedonism; in the second, it approaches the wider Utilitarian doctrine; in the third, it counsels contempt of the body and philosophic contemplation, leading naturally to mysticism in belief and to asceticism in practice.

then it stands in the relation of a cause to its effect. Or, is it that which enables us to determine the true place of self-sacrifice, when, in cases of conflict, doubts arise as to how far self-abnegation is legitimate? then it exercises the function of a guide, a regulator, a controller. Or, is it that which broadens our views and widens our sympathies? then it assumes the form of an educator, and has significance for Ethics inasmuch as broadened views make for unselfishness, and sympathy lies at the very root of virtue. The whole question is one of complexity, but one of high interest; and, as it touches conduct at so many points, it demands in all its branches the careful consideration of the moralist.

So, too, with the fourth inquiry, *viz.*, How fares it with Virtue when we view it in connexion with man's ideal future? In so far as this question is a purely speculative one, many may refuse to enter upon it. But, for all who have faith in the brightness of man's future, and who believe that self-sacrifice is the great means towards the desiderated end, the question is fraught with deep practical import. For the evolutionist, in particular, the consideration of it becomes imperative: and a similar inquiry presents itself to the Christian ethicist—in relation, of course, to the doctrine of immortality and "the new heavens and the new earth wherein dwelleth righteousness". The practical value of it lies here, that men, as matter of fact, are greatly influenced in their conduct by ideals, and the power of an ideal in producing right living depends in turn on the degree in which it can commend itself to our acceptance (can fascinate or please), and on the strength of our conviction in the probability of its ultimate realisation.

Perhaps we might stop here. But a fifth question becomes legitimate, *viz.*, as to the right adjustment between the virtuous or self-sacrificing part of our nature and the egoistic or self-regarding. And this is the proper place for determining where the standard of adjustment is to be found—whether within (as in the conscience) or without (as in the will of the Deity, the Sovereign, the State, &c.)

Now, I do not say that these five questions are all mixed up together in *every* English ethical treatise; but no English ethical writer is sufficiently careful and distinct at all points, while glaring instances of confusion are by no means uncommon. What we want is *first* a clear handling of the notion; *then*—after that, and in the light of that—separate discussion of the various allied problems. Only thus may we hope to attain clearness and precision, and to reach the end so much desired—the scientific treatment of the Ethical branch of mental philosophy.

II.

Closely connected with the preceding, and indeed part of the same process, but here kept distinct for the sake of emphasis, is

—marking the exact sweep or scope of a problem. This takes a twofold meaning according as the problem is (1) one referring to a definite subject, restricted to a single department of knowledge, but liable to being misunderstood because ambiguous in statement; or (2) one referring to a subject which has various aspects and so may be treated of in various departments, the particular aspect under consideration being determined by regard to the department in which the question is asked.

(1) Suppose the question put, "Is or is not the Will free?" Our first duty is to ascertain, by a critical sifting of the spheres of action, in what spheres Liberty can with plausibility be said to reside and in what spheres it cannot be allowed a footing: otherwise, we run the risk of falling into either of the two extremes—giving an over-extension to the question, or narrowing it too far. We over-extend it, when we fail to perceive that freedom is conditioned by consciousness, and that all unconscious and all sub-conscious actions are excluded from our consideration. We over-restrict it, when (with Cicero, Kant, and many moderns) we tie down the question to *moral* liberty—to freedom from the bondage of the animal or lower principles of our nature and submission to the moral law; forgetting that Consciousness is wider than Conscience, and that moral freedom does not exhaust the matter. Again, we over-extend it, when we treat Consciousness of freedom as identical with Conviction of freedom; for, not only are the two things entirely different in themselves,[1] but the latter is far wider than the former. We unduly limit it, when we confine the point to one single kind of act, *e.g.*, deliberation. Before we can hope to attack successfully the problem, "*Is* the will free?" we must first settle with ourselves the preliminary inquiry, "*Where*, on the supposition of freedom, are we likely to find it?"

Similarly with the question, "What is the ultimate ethical end?" Apart from the ambiguity residing in the word "end,"[2] this is most commonly regarded as equivalent to the other, "What do men consciously set before them as their ultimate end?" But a moment's reflection will suffice to show that the two are by no means identical; and that the ultimate end need not be, and is not, something of which we are uniformly conscious,—in other words, something that a man aims at, and of set purpose pursues, in every moment of his existence. On the contrary, a man is nothing apart from his character; and, as character is itself in great measure a congeries of habits—as it is a product, a formation, something that is built up through time and energy,—the range of conscious purpose, even in morals, must be limited, and the real actuating principle may in many cases remain unperceived. Moreover, we know from our own experience that the immediate springs of action are manifold and various, and that they stimulate to manifold and various ends. While at one time we are moved by a regard to virtue, we are at other times determined in our conduct by considerations of happiness or pleasure. So that it is not the circumstance of being a uniformly-present conscious motive that characterises the ultimate end: and this consideration must be kept in view if we would determine the character and nature of the *summum bonum*.

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[1] Consciousness *accompanies* an act of choice, Conviction *follows* it; and, whereas the former is most vivid during a conflict or struggle, it is after the conflict is over and we have lost—in other words, it is when we begin to upbraid ourselves for having yielded to temptation,—that our conviction is strongest that we might have done differently from what we did. Moreover, conviction has also a forward reference. I am convinced of my ability to do such and such a thing to-morrow, or to resist an approaching temptation; but alas! when to-morrow comes or the temptation arrives, I find myself powerless. Past and future both belong to conviction; consciousness is concerned solely with the present.

[2] It may mean (1) that in which we rest satisfied, as when it is said (by Butler, for example) that food is the end of hunger or virtue the end of conscience; or (2) final cause, intended purpose, "primary use and intention".

In like manner, Psychology and Logic both afford us abundant illustrations; but examples need not be accumulated.

(2) The second class of questions is not less important. Take first the Concept or Notion. It falls to the province of Logic to consider the formation of the notion, in so far as it is concerned with generalisation, and in so far as it bears upon the two important processes of Definition and Classification—the latter including, or reposing on, Division. But when you go beyond this, and raise the controversy of Realism *versus* Conceptualism and Nominalism, you have trespassed on Psychology and Metaphysics.

It is not otherwise when we turn to Judgment. This subject has well-marked aspects—so many of them logical, so many metaphysical, and so many psychological: but it is the tendency at present to mix them all up together, and to relegate the discussion of them to Logic. Particularly observable is the tendency to raise metaphysical issues—as, for instance, what the ultimate subject in a proposition is—whether a reality or simply an idea; and, if the former, whether the reality of presentation or merely the reality as something given in this, yet in itself unattained and unattainable. This innovation we probably owe to the influence of Hegel, and it can be accepted only if we be prepared like Hegel to identify Logic with Metaphysics. With equal reason might we raise in Logic the discussion as to the Origin of Knowledge, for this question undoubtedly implicates the logical doctrine of Judgment, and, apart from the distinction of analytic and synthetic propositions, could not be argued. But the metaphysics of the subject is one thing, and the logic of it another; and it does not conduce to intelligibility to have them both confounded.

Equally irrelevant is it in a logical treatise, to raise the question of the Association of Ideas, or the question as to the Relativity of Knowledge. Although both of these have distinct logical bearings, and although our mode of regarding them will inevitably affect our treatment of Logic itself, nevertheless the full discussion belongs of right to Psychology, and to transfer it to Logic is simply to burden one province with the subject-matter of another, and thereby to remove boundaries and obliterate distinctions which can alone secure successful exposition.

Passing next to Ethics, we are met by similar confusion. Thus, in ethical discussion at the present day, Morality and Free-will are often inextricably blended; and the result has been confusion more confounded. The earlier English moralists knew better. Shaftesbury, the framer of the moral-sense theory, has no handling of the free-will problem at all; and he is followed almost exactly, in this respect, by Hutcheson. Both saw that Conscience, Right and Wrong, Duty, Obligation are what they are whatever be our teaching as to free agency; and one need never expect either clearness or precision in Moral Science until the earlier position be reverted to. Similarly, Ethics and Sociology are near of kin; but they must not be identified. The present tendency is to obliterate the lines of demarcation between them and to absorb the one in the other; and in proportion to the strength of the destructive force should be the vigour of the resistance.

Again, leaving Ethics, let the question be asked, "How do we know Mind?" This question is susceptible of various modes of treatment, according to the province in which it is put or to which it is understood to refer. If it is asked in Psychology, then very naturally the answer lays the stress on the subjective or introspective method—on the examination and interrogation of individual consciousness,—and allows only a secondary (albeit a very important) place to the objective method, or attention to the outward expression of mental characteristics in others. If, on the other hand, it is put in connexion with Evolution, then the emphasis is necessarily laid on the objective method—on the study of mental expression in other sentient beings, more particularly in the lower animals or brute creation. And if it be put with special regard to Education and the teacher, then the objective method still occupies the prominent place; only, the expression watched and the mental growth registered are mainly those of young folk and children. Everywhere, in cases such as these, there is need for a scrupulous application of the analytic *distinguo;* and for want of this, ambiguity creeps in and confusion prevails.

So with other branches of mental science. There is chaos at present as to boundary lines; and, although there will always no doubt be a disputable margin at the confines of every province of philosophy, the general territory needs not be other than well-marked, being clearly enough ascertained; and unless this general territory be definitely recognised and strictly guarded, neither clearness nor progress can be looked for or demanded.

III.

Up to this point we have considered the Separation of Questions as a logical operation having for its end two distinct things, *viz.*, propriety of exposition and security against irrelevant criticisms. But there are certain problems that stand by themselves, and ought to be kept distinct, for a further reason. These deal with the Ultimate, and, being ultimate, are simply not to be discussed, but to be started from. A due regard to this fact would have spared us many a dreary page and many a weary hour.

The ultimate, however, has two senses. It is either that which is *absolutely* fundamental, or that which is fundamental only for the particular science or department under consideration. The absolutely fundamental is that beyond which we cannot get, and which (whether we be dealing with philosophy itself or with a special department of it) when we try to reduce it, lands us in contradictions or in vacuity. The relatively fundamental is seen when the ground-principles of one department find their justification in another; as when Logic reposes on Psychology, or Psychology points back to Metaphysics. Examples of the first alone need here be given.

We commence with the doctrine of Relativity (in its sense of Correlativity[1]), and we find that this is absolutely fundamental. All conscious experiences implicate a change of state; discrimination is indispensable. But discrimination supposes agreement; without similarity there could be no idea of difference. This then is something that we must simply begin with. When, therefore, we go further and inquire,—Which of the two, at the first start of consciousness, is prior in the order of time? in other words, Does similarity precede difference or difference come before similarity?—we ask a question that from the very nature of the case admits of no solution. In the primary consciousness, according to any idea of consciousness that we are able to form, the two elements are found conjoined; and the conjunction is the point of departure for psychological reasoning.

Not greatly different is the question, What would our conception of colour be, supposing the primary colours had been other than they are? We have indeed room for speculation here, but we need never expect a definite or solid result. Our experiences are such and such, whether we will or not; and it is quite hopeless to try to get beyond experience. As we cannot stand upon our own shoulders, it is mere waste of time to speculate on what the consequences would be supposing we could. But if we do speculate, let us quite understand that the operation has only a dialectical value, and let us cease claiming for it the place of a healthy and sober exercise.

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[1] The other sense, of course, is the finiteness or limitation of the human faculties.

We have the fundamental, again, in reference to Memory. The trustworthiness of this faculty (when duly limited) is a psychological postulate; and it is so, because we cannot help ourselves. Every attempt to prove it utterly and unconditionally untrustworthy is glaringly suicidal; for it can only proceed by assuming the veracity of that whose falsity it intends to establish.

In the same category is to be placed the dependence of Thought on Language. That the two progress together, that the growth of the one means the growth of the other and *vice versâ*, has been proved to demonstration. But to ask whether the one could exist without the other is really to put a meaningless interrogation. There are no data which, however adroitly manipulated, can authorise us in returning a dogmatic answer.

It is nowise different with the celebrated Laws of Thought. These are nothing if they are not fundamental, and, in the last pinch, you can only say they have to be taken for granted. The Mind being what it is, Reasoning can only progress upon certain assumptions: and if you refuse these assumptions, you simply exclude yourself from reasoning, and are made welcome to a substitute, if you can find one. This is altogether different, of course, from the question whether in any given instance these laws have been actually outraged. Not only may this second question be asked, but argued too; yet the final test is precisely those laws that for thought are fundamental.

Similarly in Ethics. There is so much of ethical doctrine that we must be contented to start from as a basis. Of this nature are the two principles Self-love and Benevolence (Egoism and Altruism). Each of these is primordial in the human constitution; and any attempt to prove the existence of either of them, or to resolve the one into the other, is foredoomed to failure. Hence the collapse of Butler's argument (as developed in the *Sermons*) about what, since Price's time, has come to be known as the Object of Desire—*if* that argument be taken as a demonstration of the existence of disinterested regard. That it was so understood by Price, is clear and evident from the *Review*: but it may very much be doubted whether Butler himself actually intended it to be thus taken. Rather, his attitude (so it seems) was something different. Accepting the existence of both disinterested and self-regarding motives as facts of our constitution, he set himself to show, by means of his doctrine of desire, that there was really no inconsistency or contrariety between the one fact and the other. Here (he said) is self-love (one fact of our nature) whose object is internal, *viz.*, our own happiness. Here, again, is benevolence (another fact of our nature) whose object is external, *viz.*, the happiness of our fellows. But besides benevolence, we have other facts of our nature (*viz.*, particular appetites, passions and affections) whose object is external—hunger, for example, whose object is food. In this respect, therefore, benevolence agrees with these (*its* object, like theirs, is external), and so has to be affiliated with these. But if so, there can be no greater contrariety between self-love and benevolence than there is between these and self-love. But nobody maintains that there is any contrariety between self-love and these. Therefore, nobody has a right to maintain that there is any contrariety between self-love and benevolence. Whatever may be thought of this as proof of the thing we have supposed Butler to intend, it obviously is no proof of the existence of disinterested motives; and proof of this (in the strict sense of the term) is impossible.

Hence also the futility of attempts to reduce Virtue to a single principle of our nature. It is only by sleight of hand that either the pure egoist or the pure altruist is able to give anything like plausibility to his doctrine—only by surreptitiously introducing the element or principle that he began by excluding. Is regard to one's own interest set forth as the sum of virtue? Then this personal regard is forthwith identified with prudence, and prudence is used convertibly with self-love, and self-love is defined as a rational principle, and reason *for the individual's good* inculcates a regard to others. Or, is the whole benevolence? Then benevolence (we are told) must be taken as directed by reason, and reason includes conscience ("Rationality," as Butler says, "including in this both the discernment of what is right, and a disposition to regulate ourselves by it"), and conscience "discerns" prudence to be right: and there you have it.[1] *One* principle is clearly insufficient. We are neither all egoism nor all altruism, and the great problem of Ethics really is, *not* how to resolve the one into the other, but how to balance these two principles, neither submerging the one nor over-exalting the other.

Some questions then are ultimate, and ought to be treated as such. But these ultimate questions obviously require a test; for, without a test, we run the risk of erecting into the ultimate whatever we please. What then is the test? It can be but one thing—Experience. That is ultimate which, accepting experience as our guide, cannot be reduced into anything simpler: whenever we can resolve a question into one more fundamental, that (still trusting to experience) is derived. But experience varies; and so questions that are ultimate now may cease to be ultimate hereafter. Possibly enough, they may: but *until* they do, we must just accept them as given; and *when* they do (if ever), the ground, and therefore the justification, of the change will be experience still. *À priori* reasoning is a help indeed; but only after we have already reached certain conceptions (such as those of mind and human nature) *à posteriori*. And this we may rest assured of, that whatever reasoning leads us into contradictions or into impenetrable haze is *ipso facto* stultified: it stands self-condemned as illusory and inept.

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[1] It is historically curious that Butler, while rejecting the doctrine that "Benevolence is the sum of Virtue" in the *Dissertation*, frequently accepts it in the *Sermons*. See, for instance, *Ser. XII.* and *Ser. IX.* In this last he says—"That mankind is a community, that we all stand in a relation to each other, that there is a public end and interest of society which each particular is obliged to support, is the sum of morals".

MIND AS A SOCIAL FACTOR.

By Lester F. Ward.

After many centuries of exclusive study of the soul the thinkers of the world turned their attention for some centuries more to the study of the intellect. During all this time, the true influence of mind as a social factor was left quite out of view. At last there rose up the scientific philosophy which essayed to explain the nature of mind. Its dependence upon organisation in general and upon brain in particular was proved by scientific experimentation, and the domain of metaphysics became that of psychology. Mind was shown to be a function of body and psychology became a department of biology. Man has now taken his true position in the animal world as a product of development. Brain, which alone raises him above other animals, has been developed in the same manner as the other anatomical characters. The brain is the organ of the mind, its physical seat and cause. Mind is therefore a natural product of evolution, and its achievements are to be classed and studied along with all other natural phenomena. Such is the scientific conception of mind.

The modern scientist places all objects in the midst of an infinite series of antecedents and consequents. Organic forms as well as inorganic must take their places in this series—the animal no less than the plant, the man no less than the beast. Mind itself is a link of this endless chain. Its activities consist in the transmission of the properties of its antecedents to its consequents. The quantity of force in the universe is constant. No power can increase or diminish it. All attempts on the part of the creatures of this constant and unchangeable force to modify its normal effects are not less vain because such creatures happen to have acquired the faculty of observing the changes going on in nature.

The protracted study of nature's processes leads to admiration of them, and the belief has become prevalent that they are not only unalterable but also in some way necessarily beneficent.

Nature has made great progress in developing organised beings and is assumed to be still working in this direction. The natural method is always the true method, and to find it out is the aim of all scientific investigation. Out of this earnest and laudable strife to discover the true method of nature has grown, logically enough, the assumption that when found it must be something of great worth. It is commonly supposed that the highest wisdom of man is to learn and then to follow the ways of nature. Those dissatisfied people who would improve upon the natural course of events are rebuked as meddlers with the unalterable. Their systems are declared utopian, their laws *bruta fulmina.* All efforts in this direction are held to be trifling and are stigmatised as so many ignorant attempts to nullify the immutable laws of nature.

This general mode of reasoning is carried into all departments of human life.

In government every attempt to improve the condition of the state is condemned and denounced. Curiously enough, here the claim is illogically made that such measures are harmful. In fact, unfortunately for the whole theory, they have often been proved to be so. But this, of course, proves their efficacy. This glaring inconsistency is, however, overlooked, and government is implored, not to adopt wise and successful measures, but to refrain from adopting any, to let society alone, and thus allow the laws of nature to work out their beneficent results.

In commerce and trade absolute freedom is insisted upon. Free trade is the watchword of this entire school. The laws of trade, they maintain, are natural laws. As such they must be better than any human rules. And here again we find them insisting that regulation is injurious to trade, although it is at the same time declared to be nugatory.

In social affairs these doctrines are carried to their extreme logical outcome. The laws of nature as they manifest themselves in society must be left wholly untouched. The passions of men will neutralise and regulate themselves. Competition can be depended upon to correct abuses. The seller must be allowed to exaggerate and misstate the nature of his wares. This has the effect to sharpen the wits of the buyer, and this develops the brain. To dilute, adulterate, or even poison food and medicine for personal gain is not objectionable, since the destruction thereby of a few unwary consumers only proves their unfitness to survive in society. As in general commerce, so in private business, competition must be free. If a dealer, by selling at a loss, can hold out until all his competitors have been driven from the field, in order then to recover more than his losses by the monopoly he will enjoy, his right to do this must not be questioned. It is under such conditions and by the aid of such discipline that man and society have developed.

Education must be that of experience. Knowledge must be gained by efforts to avoid the consequences of ignorance already felt. The intellectual development of the child must be an epitome of that of the race. It is thus only that nature operates, and surely nature is greater and wiser than man.

All schemes of social reform are unscientific. Public charities tend to bolster up unworthy elements in society that nature has declared unfit to survive. Temperance reforms tend only to abridge individual liberty—for even the liberty to destroy one's self should be respected. Philanthropy is zeal without knowledge, while humanitarianism is fanaticism.

This general class of views antedated by many years the publication by Spencer and Darwin of their formulated doctrines of the "survival of the fittest" and "natural selection". But it cannot be denied that these doctrines, supported as they were by facts fresh from nature, have greatly strengthened this habit of thought. Nature's method is now much better known than formerly, and it is now well understood that an utterly soulless competition constitutes its fundamental characteristic. Surely man cannot go astray in following in the footsteps of nature. Let him learn from the animal world. He has descended from some of the humble stocks which he is now studying. Nature's plan has raised him from the condition of a beast to that of a rational being. It has created and developed society and civilisation. Unless tampered with by "reformers" all the operations of society would be competitive. Competition is the law of nature out of which progress results. Sociology, as its founder insisted, must be based on biology, and the true sociologist must understand this biologic law. Those who propose to apply methods to society which are opposed to the methods of nature are supposed to be ignorant of these fundamental truths and are called empiricists, "meddlers," and "tinkers".

Such, I say, is the tenor and tendency of modern scientific thought. I do not say that all scientific men hold these views. I merely maintain that leading ones have formulated and inculcated them as natural deductions from the established facts of science, and that the public mind is rapidly assimilating them, while scarcely any attempts are being made to check their advance.[1]

Is there any way of answering these arguments? Can the *laissez faire* doctrine be successfully met? That all attempts to do this have been timidly made cannot be denied. That these have been few and feeble is equally certain. While there has existed in the minds of many rational persons a vague sense of some hidden fallacy in all this reasoning, none have felt competent to formulate their objections with sufficient clearness and force to warrant pitting them against the resistless stream of concurrent science and philosophy of the nineteenth century. There has, however, been developing of late a more or less marked apprehension with regard to the possible consequences of this mode of thought. The feeling is distinct in the best minds, and to a large extent in the public mind, that the tendency of modern ideas is nihilistic. It is clear that if they become universally accepted they must work stagnation in society. The *laissez faire* doctrine is a gospel of inaction, the scientific creed is struck with sterility, the policy of resigning all into the hands of Nature is a surrender.

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[1] The social philosophy of Mr. Herbert Spencer possesses this tone throughout, and his disciples, particularly in America, delight in going even farther than their master. The most extreme statement of the *laissez faire* doctrine known to me is that of Prof. W. G. Sumner, in his recent work *Social Classes.*

But this recognition is by no means proof that the prevalent opinions are false. At best it can only suggest this on the ground that true doctrines should be progressive. But this would be a *petitio principii.* Nature is not optimistic, still less anthropocentric. For aught we know, the laws of nature are such as make a recognition of strict scientific truth a positive barrier to social advancement. The argument we have been considering must be refuted, if at all, by legitimate counter-argument.

The present attempt to meet some parts of this argument is made in full consciousness of its strength as a factor in modern thought and with due deference to the great names that stand committed to it. The scientific facts which its defenders have brought to its support are, in the main, incontestable. To answer by denying these would be to abjure science and deserve contempt. The method of nature has been correctly interpreted. The doctrines of the survival of the fittest and natural selection are perfectly true doctrines. The law of competition is the fundamental law. It is unquestionably true that progress, not only in primary organic development, but also in society, has resulted from the action of this law.

After conceding all this, the attempt, notwithstanding, to stem the tide of modern scientific thought must, indeed, seem a hopeless one. At the outset it must be frankly acknowledged that if the current views are unsound the fault is not chargeable to science. If there is any defect it must lie in the inferences drawn from the facts and not in the facts themselves. To what extent, then, is the *laissez faire* doctrine, as defined and popularly accepted, an inference? If the method of nature is correctly formulated by that doctrine, wherein lies the fallacy when it is applied to man and to society?

In order to grapple at once with the whole problem let me answer these questions by the open charge that the modern scientific philosophers fail to recognise the true value of the *psychic factor*. Just as the metaphysicians lost their bearings by an empty worship of mind and made philosophy a plaything, so the modern evolutionists have missed their mark by degrading mind to a level with mechanical force. They seem thus about to fling away the grand results that the doctrine of evolution cannot otherwise fail to achieve. Far be it from me to appeal to the prejudices of the enemies of science by casting opprobrium upon scientific deductions, but when I consider the tendencies which are now so unmistakable, and which are so certainly the consequence of the protracted study, on the part of leading scientists, of the unquestionable methods of nature, I think I can, though holding precisely opposite opinions, fully sympathise with Carlyle in characterising the philosophy of evolution as a "gospel of dirt".

But I need not longer dwell upon the blighting influence of this construction of the known laws of nature. Let us approach the kernel of the problem.

The *laissez faire* doctrine fails to recognise that, in the development of mind, a virtually *new power* was introduced into the world. To say that this has been done is no startling announcement. It is no more than has taken place many times in the course of the evolution of living and feeling beings out of the tenuous nebulæ of space. For, while it is true that nature makes no leaps, while, so long as we consider their beginning, all the great steps in evolution are due to minute increments repeated through vast periods, still, when we survey the whole field, as we must do to comprehend the scheme, and contrast the extremes, we find that nature has been making a series of enormous strides, and reaching from one plane of development to another. It is these independent achievements of evolution that the true philosopher must study.

Not to mention the great steps in the cosmical history of the solar system and of the earth, we must regard the evolution of protoplasm, the "physical basis of life," as one of those gigantic strides which thenceforth completely revolutionised the surface of our planet. The development of the cell as the unit of organisation was another such stride. The origin of vertebrate life introduced a new element, and the birth of man wrought still another transformation. These are only a few of nature's revolutions. Many more will suggest themselves. And although, in no single one of these cases can it be said at what exact point the new essence commenced to exist, although the development of all these several expressions of Nature's method of concentrating her hitherto diffused forces was accomplished through an unbroken series of minute transitional increments continued through eons of time, still, it is not a whit less true that each of these grand products of evolution, when at length fully formed, constituted a new cosmic energy, and proceeded to stamp all future products and processes with a character hitherto wholly unknown upon the globe.

It is in this sense, and in this only, that I claim the development of mind—of the thinking, reasoning, inventing faculty of the human brain—as another, and one of the best marked, of the great cosmic strides that have characterised the course of evolution and belong to the legitimate methods of nature.

It is, for example, only to a limited extent and in the most general way that we can apply the same canons to the organic as to the inorganic world. It is usually, but falsely, supposed that the student of biology need know nothing of physics, the assumption being that they have nothing in common. While this error is fatal to all fundamental acquaintance with the laws of life, it well illustrates the immensity of the advance from one realm to the other. The same could be said, in varying degrees of obviousness, of every one of the ascending steps to which reference has been made. I freely admit that the theologians and metaphysicians commit the most fatal error in treating the soul, or mind, as independent of the body, but this enormous fallacy is scarcely greater than that of the modern evolutionist, who, finding out their dependence, ignores the *magnitude* of the step by which mind was made a property of body, and proceeds as though no new factor had entered into the world.

But all this may be regarded as mere generality. Let us come to something more specific.

It has always been a marvel to my comprehension that wise men and philosophers, when smitten with the specious logic of the *laissez faire* school, can close their eyes to the most obtrusive fact that civilisation presents. In spite of the influence of philosophy, all forms of which have thus far been negative and nihilistic, the human animal, with his growing intellect, has still ever realised the power that is vouchsafed through mind, and has ever exercised that power. Philosophy would have long since robbed him of it and caused his early extermination from the earth but for the persistence, through heredity, of the impulse to exercise in self-preservation every power in his possession; by which practice alone he first gained his ascendancy ages before philosophy began.

The great fact, then, to which I allude is that, in spite of all philosophy, whether mythologic, metaphysical, or naturalistic, declaring that man must and can do nothing, he *has*, from the very dawn of his intelligence, been transforming the entire surface of the planet he inhabits. No other animal performs anything comparable to what man performs. This is solely because no other possesses the developed psychic faculty.

If we analyse mind into its two departments, sense and intellect, we shall see that it is through this latter faculty that these results are accomplished. If we inquire more closely into the mode by which intellect operates, we shall find that it serves as a guiding power to those natural forces with which it is acquainted (and no others), directing them into channels of human advantage. If we seek for a single term by which to characterise with precision the nature of this process, we find this in *Inven-*

tion. The essential characteristic of all intellectual action is invention.

Glancing now at the *ensemble* of human achievement, which may be collectively called civilisation, we readily see that it is all the result of this inventive process. All practical art is merely the product of successful invention, and it requires no undue expansion of the term, nor extraordinary power of generalisation, to see in all human institutions only modified forms of arts, and true products of the intellectual, or inventive, faculty.

But what is the general result of all this? An entirely new dispensation has been given to the world. All the materials and forces of nature have been thus placed completely under the control of one of the otherwise least powerful of the creatures inhabiting the earth. He has only to know them in order to become their master. Nature has thus been made the servant of man. Thus only has man succeeded in peopling the entire globe while all other animals are restricted to narrow faunal areas. He has also peopled certain portions far more densely than any other species could have done, and he seems destined to continue multiplying his numbers for a long time yet in the future. But this quantitative proof is even less telling than the qualitative. When we confine our attention to the *élite* of mankind we do not need to have the ways specified in detail by which the powers of mind have exalted the intellectual being above all other products of creation. At the present moment the most dense and the most enlightened populations of the globe occupy what are termed temperate latitudes, which means latitudes in which for from three to five months each year vegetation ceases entirely, the waters are locked in ice, and the temperature frequently sinks far below the zero of the Fahrenheit thermometer. Imagine the thin-skinned, furless animal man subsisting in such a climate. Extinguish his fires, banish his clothing, blot out the habitations that deck the civilised landscape. How long would the puny race survive? But these are not products of nature, they are products of *art*, the wages of thought—fruits of the intellect.

When a well-clothed philosopher on a bitter winter's night sits in a warm room well lighted for his purpose and writes on paper with pen and ink in the arbitrary characters of a highly developed language the statement that civilisation is the result of natural laws, and that man's duty is to let nature alone so that untrammeled it may work out a higher civilisation, he simply ignores every circumstance of his existence and deliberately closes his eyes to every fact within the range of his faculties. If man had acted upon his theory there would have been no civilisation, and our philosopher would have remained a troglodyte.

But how shall we distinguish this human, or anthropic, method from the method of nature? Simply by reversing all the definitions. Art is the antithesis of nature. If we call one the natural method we must call the other the artificial method. If nature's process is rightly named natural selection, man's process is artificial selection. The survival of the fittest is simply the survival of the strong, which implies, and might as well be called, the destruction of the weak. And if nature progresses through the destruction of the weak, man progresses through the *protection* of the weak. This is the essential distinction.

In human society the psychic power has operated to secure the protection of the weak in two distinct ways: first, by increasing the supply of the necessities of life, and, secondly, by preventing the destruction of life through the enemies of man. The immediate instrumentality through which the first of these processes is carried on is art, the product of invention. The second process takes place through the establishment of positive institutions.

It is difficult to say which of these agencies has been most effective. Both were always indispensable, and therefore all comparison is unprofitable.

Art operates to protect the weak against adverse surroundings. It is directed against natural forces, chiefly physical. By thus defeating the destructive influences of the elements and hostile forms of life, and by forcing nature to yield an unnatural supply of man's necessities, many who would have succumbed from inability to resist these adverse agencies—the feebler members of society—were able to survive, and population increased and expanded. While no one openly denies this, there is a tendency either to ignore it in politico-economic discussions, or to deny its application to them as an answer to naturalistic arguments.

If, on the other hand, we inquire into the nature of human institutions, we shall perceive that they are of three kinds, tending to protect the weak in three ways, or ascending degrees. These three successively higher means through which this end is attained are, first, Justice, second, Morality, and third, Charity. These forms of action have been reached through the development, respectively, of the three corresponding sentiments: Equity, Beneficence, and Benevolence.

All of these altruistic sentiments are wholly unknown, or known only in the merest embryo, to all animals below man, and therefore no such means of protection exist among them. They are strictly human, or anthropic. Many evolutionists fail to recognise this. Some sociologists refuse to admit it. They look about and see so much injustice, immorality and rapacity that they are led to suppose that only natural methods are in operation in society. This is a great mistake. In point of fact, the keener the sense of justice the more conspicuous the diminishing number of violations of it come to appear, and conversely, the obviousness of injustice proves the general prevalence of justice. It is the same with morality and philanthropy.

If we consider the effect of these three codes of human conduct in the direction of enabling the weaker ones to survive we shall see that it has been immense. Out of the first has arisen government, the chief value and function of which has always been and still is such protection. Great systems of jurisprudence have been elaborated, engrossing the attention of a large portion of the population of enlightened as well as of barbaric states. To say that these have been failures because often weighted with grave defects is to misinterpret history and misunderstand society. No one could probably be found to gainsay that the moral law of society has exerted a salutary influence, yet its aim is strictly altruistic, opposed to the law of the survival of the fittest, and wholly in the direction of enabling those to survive who would not survive without its protection. Finally, the last sentiment to be developed, and doubtless the highest, is so universally recognised as peculiar to man that his very name has been given to it—the sentiment of *humanity*. Yet the mode of protecting the weak arising out of this sentiment is the one that has been most seriously called in question by the naturalistic school. It must be admitted that humanitarian institutions have done far less good than either juridical or ethical institutions. The sentiment itself is of recent origin, the product only of highly developed and greatly refined mental organisation. It exists to an appreciable degree only in a minute fraction of the most enlightened populations. It is rarely directed with judgment; no fixed, self-enforcing code of conduct, as in the other cases, having had time to take shape. The institutions established to enforce it are for the most part poorly supported, badly managed, and often founded on a total misconception of human nature and of the true mode of attaining the end in view. Hence they are specially open to attack. But if ever humanitarian sentiments become diffused throughout the body politic, become the object of deep study, as have those of justice and right, it may be confidently predicted that society will prove itself capable of caring for the most unfortunate of its members in a manner that shall not work demoralisation.

In all these ways man, through his intelligence, has laboured successfully to resist the law of nature. His success is conclusively demonstrated by a comparison of his condition with that of other species of animals. No other cause can be assigned for his superiority. How can the naturalistic philosophers shut their eyes to such obvious facts? Yet, what is their attitude? They condemn all attempts to protect the weak, whether by private or public methods. They claim that it deteriorates the race by enabling the unfit to survive and transmit their inferiority. This is true only in certain cases of hereditary diseases or mental deficiencies, which should be taken account of by man because they are not by nature. Nothing is easier than to show that the unrestricted competition of nature does not secure the survival of the fittest possible, but only of the actually fittest, and in every attempt man makes to obtain something fitter than this actual fittest he succeeds, as witness improved breeds of animals and grafts of fruits. Now, the human method of protecting the weak deals in some such way with men. It not only increases the number but improves the quality.

But "government," at least, must *laisser faire.* It must not "meddle" with natural laws. The laws of trade, business, social intercourse, are natural laws, immutable and indestructible. All interference with them is vain. The fallacy here is a *non sequitur*. It may be readily granted that these laws are immutable and indestructible. Were this not the case it would certainly be hopeless to interfere with their action. But every mechanical invention proves that nothing is easier than to interfere successfully with the operation of these uniform natural forces. They have only to be first thoroughly understood and then they are easily *controlled*. To *destroy* a force is one thing, to control its action is quite another. Those who talk in this way involve themselves in the most palpable inconsistency. They must not be allowed to stop where they do. They must go on and carry their strictures to a logical conclusion. They must deny to government the right to protect its citizens from injustice. This is a clear interference with the natural laws of society. They must deny to society the right to enforce its code of morals. Nothing is more unnatural. They must suppress the healing art which keeps the sick from dying as they do among animals. Nor is this all. They must condemn all interference with physical laws and natural forces. To dam a stream must be characterised as a "vain" attempt to overcome a natural law. The wind must be left free to blow where it will, and not be forced against the fan of a wind-mill. The vapour of heated water must be allowed to float off naturally into the air and not be pent up in a steam-boiler and thence conducted into the cylinder of a steam-engine. All these things and every other device of inventive man are so many attempts to "violate" the laws of nature, which is declared impossible.

What then remains of the *laissez faire* doctrine? Nothing but this: That it is useless, and may be dangerous, to attempt to control natural forces until their character is first well understood. This is a proposition which is true for every department of force, and does not involve the surrender of the whole domain of sociology after it has been demonstrated that society is a theatre of forces.

The truth thus comes forth from a rational study of nature and human society that social progress has been due only in very slight degree to natural evolution as accomplished through the survival of the fittest, and its chief success has resulted from the reduction of competition in the struggle for existence and the protection of the weaker members. Such competition, in so far as it has been permitted to operate, has tended to lower the standard of the fittest and to check advancement. It is not, of course, claimed that the natural method has ever been fully overcome. It has always operated, and still operates, powerfully in many ways. It has been chiefly in the simpler departments of physical and mechanical phenomena that the psychic, or anthropic, method has superseded it. The inventive arts have been the result. Vital forces have yielded to some extent to the influence of mind in bringing about improved stocks of animals and vegetables, and even certain social laws have come under rational control through the establishment of institutions. Still, every step in this progress has been contested. It was not enough that the intellect was feeble and ill-fitted to grapple with such problems. It was not enough that ignorance of nature's laws should cause unnumbered failures. A still stronger barrier was presented by the intellect itself in the form of positive error embodied in philosophy. As already remarked, philosophy has always been negative and nihilistic, and has steadily antagonised the common sense of mankind. It is only quite recently that there has come into existence anything like a truly *positive* philosophy, *i.e.*, a philosophy of *action*. The intellectual power of enlightened man has at length become sufficient to grasp the problems of social life. A large body of truth has been accumulated by which to be guided in their solution. Positive error in the drawing of false conclusions from established facts is now the chief obstacle. Rational interpretation has come to prevail in all the lower departments of phenomena. It is chiefly in the complex departments of psychic and social action that error still holds sway. Nothing remains to be done but to apply the established canons of science to these higher fields of activity. Here there is still competition. Here the weaker still go to the wall. Here the strong are still the fittest to survive. Here Nature still practises her costly selection which always involves the destruction of the defenceless. The demand is for still further reduction of competition, still greater interference with the operations of natural forces, still more complete control of the laws of nature, and still more absolute supremacy of the psychic over the natural method of evolution.

These ends will be secured in proportion as the true nature of mind is understood. When nature comes to be regarded as passive and man as active, instead of the reverse as now, when human action is recognised as the most important of all forms of action, and when the power of the human intellect over vital, psychic and social phenomena is practically conceded, then, and then only, can man justly claim to have risen out of the animal and fully to have entered the human stage of development.

V.—CRITICAL NOTICES.

Metaphysica Nova et Vetusta. A Return to Dualism by Scotus Novanticus. London and Edinburgh: Williams & Norgate, 1884. Pp. 182.

By calling his work "A Return to Dualism," the writer of this book evidently wishes to express his adhesion, so far, to the national tradition of Scotch philosophy. But though he consistently maintains an actual dualism as given in perception, this can hardly be considered the central position of the book; and indeed there is comparatively little space devoted to the formal proof of it. The author also subsequently uses language which implies the abandonment of his Dualism, understood as an ultimate or metaphysical position. The book is, in fact, an analysis of perception, independently undertaken, but with full knowledge of, and reference to, the Kantian investigation. Besides rejecting the subjectivity of the *Critick of Pure Reason*, the author differs from Kant in maintaining that a real content of knowledge is given to us, not only through sense, but also by Reason as functionally present in perception. Reason furnishes us, he contends, with "pure percepts" (or, as he afterwards calls them, "dialectic percepts," "synthetic predications *a priori*") which are "not merely regulative, but constitutive, of the external". The whole is worked out with much sureness of touch and with real philosophical insight. The author's knowledge and use of German thought is flavoured by a certain sturdy Scotch independence as well as by an infusion of Scotch caution. He has apparently written first of all to satisfy his own need, and only in the second place for publication. The style, therefore, is marked more by straightforwardness than by literary attractiveness; and perhaps too much licence has occasionally been taken in the coining of new expressions. But the writer can often be wonderfully vivid and memorable in his way of clinching an argument or of characterising an opponent's view. Altogether, the book makes the impression of having been written by one who has held himself at some distance from the philosophical schools, and who has embodied in his work the results of his mature thought.

We need not follow the author in his grading of the different stages of intelligence (from mere reflex action upwards) lest we fall foul of those whom he calls "the biological psychologists". The matter is, in its nature, not one in which exactitude is possible. It is sufficient to note the distinction he draws between "Attuition" and Perception—a distinction which is the foundation of most that follows. Attuition is a word employed to denote "mere receptivity more or less reflexly co-ordinated," and corresponds to the highest development of what is generally spoken of loosely as Sensation. It is, or may be supposed to be, "the mental condition of the higher animals". Hume's world of custom-woven impressions is such a world as would be given by Attuition. In such a state, the subject is wholly passive, but objects register themselves, as it were, upon it. For Attuition does not give a mere chaotic manifold, as Kant sometimes says of Sensation; it is defined on p. 11 as "the reflex co-ordination of the elements or units of sensation into an image or synopsis". It is "the sensation of objects as mutually exclusive—as being not only outside the receptive or conscious subject, but also outside each other". It corresponds, therefore, most closely to Kant's Judgment of Perception—the uncategorised perception which commentators have found so hard to reconcile with other parts of his system. Perception, as understood by the author, is the one essential step beyond this, which constitutes the self-conscious individual. "A Force advances out of what has been hitherto mere receptive attuitional individuality, and prehends or seizes the presentation, holding it close to itself and contemplating it. This Force is Will." So far as the matter of the presentation goes, nothing is added in the passage from Attuition to Perception; nor, on this side of the subject, is any new "substance" foisted upon us. There is a difference of attitude; Will takes possession of the object by which the attuitive subject was previously possessed. Nevertheless, as the author puts it, in a way that recalls Ferrier, "the whole process is essentially a movement from that which was not to that which is". Only it is useless to try to explain what the animal consciousness is, or what the Self or Ego is; "all that can be done is to watch the latter in the throes of birth and name what we see". It is, as has been indicated, the result of an *actus purus*—a "wholly inexplicable spontaneity"—which may be called Will. Will forms, therefore, according to the author, the root and essence of Reason; and he frequently uses the compound form "Will-Reason" to express his position.

There follows upon this an analysis of the act of perception, undertaken with the view of proving that "the whole vast fabric of Reason is nothing save Percipience when truly seen into". In this elementary act, in other words, the constant dialectic movement of reason may be easily discerned. Besides the kinetic initiation of Will and the consequent relation of the object to the unity of consciousness, and in addition to the affirmation of the externality and independence of the object (a sense of which we have already seen to be present in attuition) there are here enumerated as the constitutive moments of Reason the familiar laws of Excluded Middle, Contradiction, Sufficient Reason, and Identity. They are mentioned in this order because all perception is determination through negation. "The simple perception 'A is A' is mediated, and so necessitated through the negative affirmations, that it is not B nor anything else, on the presumption of course that it is either A or something else. Thus the initial movement of Reason in Percipience may receive the general name of the 'Form or Law of Mediation,' inasmuch as we attain to the act of simple apprehension, A = A, only by means of a middle. It does not affect this fact that the middle is a negation" (pp. 80-1). The author endeavours to prove that fundamentally the same process of thought—"perception of the truth of one thing through the perception of the truth of another"—is exemplified in all Comparison, in Abstraction and Generalisation, in Deductive Syllogism, and in Inductive Reasoning. And he concludes, therefore, that Reason, as such, involves necessity. "The primary and perpetual form in which it moves, involves a 'must' in its conclusion. It *cannot not be* that A, since it is not B nor anything else, is A. . . . So that not only the first factor, Will or Potency, but also the second factor, Mediation, rebuts Sensationalism—the former by its mere existence, the second by its character of necessity" (p. 83).

The Third Part of the book, of which this is the conclusion, contains a careful and acute account of the nature and formation of general and abstract terms. The object of perception, at first viewed simply as a whole, is gradually transformed into a unity of qualities. The unity is here called the individual or sense-concept. It consists of course of a general, or potentially common, attribution, though it is not at first perceived as a common. The growth of the perception of similarity in difference is the growth of the common or general as such. "The force of Will is such that it can affirm a quality, and at the same time affirm or sub-affirm plurality of that quality, by a rapid repetition in thought of the objects in which that common quality has been perceived." What follows on the old subject of "abstract ideas" is well put:—"The separate entity of such an abstract-percept becomes more prominent to thought as the number of objects of which it is predicable increases. The consciousness becomes confused with the multitude of individuals, and thus, by very contrast, the one separated percept which is being affirmed as a common or general is more distinctly thrown into relief, and stands forth as if truly itself an entity." As for the full-fledged "abstract-concept"—the "cow which is no cow, and yet every cow"—when we use such a term, we are speaking of a "knowledge, not of a thing—an ideal, not a real". We are dealing with "a ghostly entity". Particular cows of sense suggest themselves, it is true, "but the sense-suggestion obtrudes itself (like sense-suggestions in the moral sphere) only to be denied and to be excluded from the sphere of the knowledge in question—which is a knowledge based on an act of Will". This psychological excursus, while not pretending to originality, is soundly and carefully thought out; but it does not seem to stand in any very special connexion with the main thesis of the book.

The author expounds his Dualism in the Second Part. He begins by drawing a distinction between extension and externality. Extension, or the quality of things as extended and figured, is given in impression like other qualities. "The externality of extension," *i.e.*, its outness from the Ego, "is given *reflexly by* consciousness. . . . This movement, moreover, lies in the very heart of consciousness; and through it alone is consciousness possible." Consciousness has thus "a *prius* in the object, that is to say, it is by a movement outside itself, and independent of itself, that the potentiality of consciousness becomes actual. This irritation is, from the side of the subject, called Receptivity." "Dualism of subject and object is thus constituted within the sense or attuitional sphere before Reason in the elementary form of Percipience appears on the field." When it does so appear, "its primal predication is the aforesaid externality and independence of extension and all the objects of sense. . . . There is, therefore, a radical dualism." It is at this point that the question of the so-called Relativity of Knowledge arises—Can the subject truly know the object precisely as it exists? "The truly external x may be transformed into y as it enters my subject-consciousness." The transcendental x's on which I depend for my knowledge of the sensible may be only "a series of dynamical shoves". This is the Kantian position (at least in one aspect of it), and is the only sense in which the Relativity of Knowledge has any meaning. For Relativity is something quite different from Relatedness, which latter is necessarily present in every case of knowing. What is said here by the author is said with admirable clearness. To the self-torturing doubt of the Relativists he gives the only answer possible:—"We are entitled to start with the *assumption* of a harmony between the conscious and the non-conscious, perfect equivalence between the idea and the *ideatum*. . . . Given an external object, that object *becomes* to my consciousness. Why should this process vitiate itself? The *onus probandi* lies on him who supposes it does" (p. 45).

Nearly half of the book is devoted to the "dialectic percepts," already referred to—those cognitions, or elements in cognition, which are not data of the outer or inner sense, but are "reason-born," having "their source in the dialectic process whereby we know". The first of these is Being or Substance. Phenomenal modes pass before the attuent subject; but the fact that these phenomena *are*, is, and can be, given solely through the Ego's act of affirmation. We can evidently say nothing more of Being or Substance than that it is. If we think to reach a closer knowledge of it, we inevitably defeat our own purpose by passing into the region of phenomena; as "a reason-sprung thought," it must vanish if we attempt to sensualise it. And if this is its nature, the percept "is not to be set aside as nothing because it is without form and void". The second percept is Cause. The attuent intelligence is aware of nothing save the fact of motion and change. Association of antecedent and consequent and resultant habits of expectation form the causal nexus of such a consciousness. But the necessary connexion which reason recognises between a cause and its effect is something more than this, and is due, like the affirmation of Being, to the activity of the subject. "The necessity is engendered on the time-sequence by means of the *à priori* causal synthetic predicate," and rests ultimately on the Law of Identity. Whether the predicate has been rightly applied in any particular case is, of course, "a question of accuracy in the observation of the phenomenal sequential series". The Absolute, or the Absolute-Infinite, the third of these percepts, is implicit, the author maintains, in every act of perception; for such an act is possible only "through the negation of an absolute and contentless, through a limitation of the not-limited, a determining of the undetermined, a making finite of the non-finite, a conditioning of the unconditioned. . . . Perception being determination, finite-making, negation, we have only to look out into the Infinite from the sphere of the finite to find that the Infinite is a negation of a negation, and so, a positive. As a positive we *know* it." Just as in the case of Being, however, "I can predicate nothing of it save that it *is*, and that it is given to me dialectically as the ground of all possible activity of Will in percipience". Or, as the author afterwards explains his meaning, in a way less open to misinterpretation, it is known only through its manifestation. "Nature and finite mind are the only predicates of the Absolute." The Absolute, or the Absolute-Causal-Being, as it is henceforth called, is the whole substance of the notion of God, so far as that notion is purely rational; and God is known to us only through "the things that are made".

These dialectic percepts constitute the *à priori* categories, if we choose to call them so. All other categories, as enumerated by Kant and others, the author holds, "in consistency with dualism," to be *à posteriori* and given by the outer. They are "generalisations of the data of sensibility," and "it is only so far as they are raised to predications that they owe anything to Will-reason at all". Unless sensibility be explicitly taken to imply the negation of reason, there ought to be no objection to such a statement. From a psychological or phenomenological point of view, it ought, indeed, to be a matter of course; and so far as Kant seems to imply anything else, his influence has been prejudicial. The author's emphatic statement here may be useful.

When we proceed to gather up the results of the book, more particularly in regard to the Absolute-Casual-Being which the critique of knowledge has revealed, we find, as already hinted, that the phenomenological dualism of the book tends to give place to a metaphysical monism. "No one denies," it is said, "the fundamental unity of subject and object, inner and outer; to do so would be to set up two Gods. As a matter of fact, however, the movement of creation exists in a diremption, and our business is done when we have exhausted our analysis of experience" (p. 48). The position laid down on pp. 149-50, and again on p. 163, is hardly distinguishable from the monistic idealism with which Hegel's name is generally associated. But it is in keeping with the modest and sober spirit of the whole book that the Monism is presented more as a belief, or, if the expression may be used, as a necessary faith, than as an ascertained certainty. More especially does faith preponderate over knowledge when we pass into the moral sphere and contemplate the great fact of the existence of evil. So that the author freely admits that, in one sense, his treatise exemplifies afresh the old saying, "Omnia exeunt in mysterium". But it is far from being written in a mystical or "misological" spirit, and the qualified dualism which the writer professes, is a position which would probably be shared by many who now occupy a more ambitious platform, if they distinguished with like carefulness between their metaphysical knowledge and their metaphysical faith.

ANDREW SETH.

Vico. By ROBERT FLINT, Professor in the University of Edinburgh; Corresponding Member of the Institute of France, &c. ("Philosophical Classics for English Readers.") Edinburgh and London: Blackwood, 1884. Pp. 232.

Students of philosophy in this country owe a debt of gratitude to Professor Flint for his very learned and interesting little book on one of the least known (to us) of great philosophers. Vico stands apart from what, through German influence, we have become accustomed to regard as the main line of European speculation; so that, as Michelet puts it, he seems to address himself rather to our age than to his own. The widespread enthusiasm for the mathematical and physical sciences, and the admiration for their methods, in the seventeenth century, had tended to withdraw attention from the philosophical study of human history. The new metaphysics of Descartes and his followers, the psychology of Locke, the opposing idealisms of Spinoza and Leibniz[1] are characterised in common by an absence of any adequate sense of the significance of history—whether the history of institutions or of ideas. This shows itself in the attempt to apply in philosophy the methods of mathematics and the natural sciences, in the use of the abstract theory of contract to explain political society, and in the attitude of antagonism or of ignorance to the great Greek philosophers and to the ideas and ideals of the middle ages. Even Kant, who initiates a new epoch, is strikingly deficient in the "historic sense". Vico, however, was an Italian; and the Italians, alone among the people of Europe, had never lost a feeling of the continuity between the old and the new civilisations. The Renaissance was to them not a breach with their past history but a renewal of it. Vico declared himself "neither an ancient nor a modern"; he was both. Again, Vico was a Neapolitan; he belonged to that Magna Graecia which produced some of the most famous of early Greek philosophies. Whether or not the race of the Hellenic colonists still influenced Southern Italy, it was Southern Italy which gave birth to the first prophets of modern thought. Further, as Vico's race linked him with the ancient, his religion connected him with the mediæval world. Although he wisely did not allow theological prejudice to influence his critical judgment, yet his attitude to Catholicism is very different from that of Descartes. Descartes' Catholicism one feels to be inconsistent with the tendencies of his method. Though Cartesianism passed from heresy to orthodoxy, yet in its beginning it was a revolt, and part of the same movement with Protestantism itself. On the other hand, though, as Professor Flint says, "it is altogether erroneous to represent Vico's philosophy as a Roman Catholic philosophy" (in the sense that his conclusions were determined by a desire to vindicate any specific Catholic dogmas), yet "he may have got, and probably did get from Catholicism, as well as from classical antiquity, a portion of his aversion to individualism, and of his appreciation of authority and of common sense or collective reason" (p. 70). The sympathetic and constructive study of early traditions which we find in Vico is very unlike the negative and abstract criticism which we usually consider characteristic of the eighteenth century; and is nearly a hundred years in advance of his time.

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[1] Of course this remark is least applicable to Leibniz. Leibniz was a historian, and he knew more of various philosophies than any of the other great thinkers from Descartes to Kant, but he did not bring his historical and philosophical studies to bear on one another. Professor Flint (*The Philosophy of History in France and Germany*, p. 345) says Leibniz's "was the first philosophy which was profoundly historical in spirit"; yet he

> "In spite of many faults and defects, many fanciful and disfiguring traits, Vico's picture of the heroic age must be pronounced a work of great, of unique genius. It surpassed all Greek and Roman fame, showing how little the classical world had comprehended even its own Homer, and how far from having been exhausted was the significance of that world itself. It displayed a combination of critical and constructive power, of sceptical courage and imaginative realisation, of which there had been no previous

allows that Leibniz made no historical application of his views except perhaps in his theory of optimism. But surely Leibniz's very phrase—"best of all *possible* worlds"—shows a mathematical rather than a historical way of thinking. The philosopher who is influenced by history considers *what is* and *has been*, not *what might have been if*—.

example in the department of history. It was a prophecy and prefiguration of the achievements alike of a Wolf and Niebuhr, of a Walter Scott and Augustin Thierry" (p. 223).

The "discovery of the true Homer," which occupies a whole book in the second edition of the *Scienza Nuova* (1730), is certainly the most important positive addition which Vico has made to historical science. "The Homeric poems are regarded as not the creations of the genius of an individual, but the formations of the genius of a race working throughout a period of about 460 years" (p. 174). This "discovery" involves a principle of historical criticism, which, remaining dormant for a while, became afterwards and is still of the weightiest consequence for human thought.

But what, it may be asked, is the special significance of Vico as a philosopher? It is again to the *Scienza Nuova* that we must turn: for it apparently requires Italian patriotism to discover much that is profitable in his ontological theories. "The *Scienza Nuova*," Professor Flint remarks, "one might almost say is Vico." Now this of itself is, as already implied, one of the main points about him, *viz.*, that his interest is in the history of the institutions and the ideas of nations and humanity, rather than in psychology or ontology or in the sciences of nature.

Secondly, his conception of *method* deserves attention. It consists in a combination of Reason and Authority, of Philosophy and Philology (cp. *Scienza Nuova*, Lib. i. "Degli Elementi," Axiom x., &c.). "Philology" Vico understood in a wide sense as "the knowledge of the speech and acts of peoples". This Professor Flint well compares with Boeckh's definition, "Erkenntniss des Erkannten" (p. 192). Vico's method, if we generalise it, is thus the interpretation of facts (*incl.* opinions) by reason and the testing of reason by facts. This is of course the method always more or less employed in all ordinary affairs of life by prudent persons; it is the method of all scientific discoverers, of all great historians, and of all great philosophers. But it is not *professedly* the method of all. We may compare it with Aristotle's perpetual bringing together of λόγοι and ἔργα, and with his habit of appealing to τὰ λεγόμενα and criticising them. We may contrast it with Bacon's rejection of Authority and with the professed method of "experience," taking up a merely receptive attitude towards facts; or, on the other side, with the Cartesian test of "clear ideas" and the abstract deductions of scholasticism, or the empty raisonnement of the Wolffian school (Kant's "dogmatists").

If we turn to Vico's actual performance, we are often repelled by his fantastic terminology, probably due in part to the bad example of Bacon, and when we have made out his meaning we are often disappointed. As Professor Flint says (p. 41): "He was easily misled by false analogies. He was ingenious in devising perverse interpretations". The main issue of Vico's speculation on the course of history, which he studied chiefly in that of his own Italy, is summed up in his conception of *corsi* and *ricorsi*. It is extraordinary that his view should ever have been confused with such a theory of exactly recurring cycles as we find in many ancient cosmogonies, and as an undercurrent to the political philosophy of Plato, and even of Aristotle. After the fall of the Roman Empire (the first "human" period), the "divine" and "heroic" ages recur in the barbarous and feudal times, but Vicó knew well enough the difference between these periods and the ages of early Greece and Rome. In fact, Vico's philosophy of history belongs to the same class with that of Hegel. Professor Flint would probably question this. Vico is indeed generally claimed by the "sociologists," while Hegel is put aside as a mere idealist. Yet Vico insists on recognising a definite "rhythm" in history as much as Hegel; and Hegel's dialectic formalism, often artificially employed, need not blind us to his generally firm grasp of historical reality. The words which Professor Flint uses (p. 193) to describe Vico's conception: "The entire history of mankind is but the eternal idea of that history which existed in the divine mind realised and manifested in actual events," might quite well be applied to Hegel's. The difference of course is that Hegel tried to find the movement of this "eternal idea" *everywhere*. Whether such an interpretation of history can have more than an "aesthetic" value is questioned by Lotze, and probably by most Englishmen, however much they are unconsciously or half-consciously influenced by it. Whether it includes the new scientific conception of Evolution, or requires to be modified by it, is an interesting question which needs more discussion than it has yet received.

Professor Flint has made a careful use of the extensive "Vico" literature which abounds in Italy. In this it is out of our power to follow him. It need only be said that his long-promised account of other Italian philosophies of history will now be more eagerly looked for than before.

We have noticed one small error—at least a word which may be misleading. Plato is said (p. 162) to have divided Governments into monarchy, aristocracy, democracy, of which the perversions are tyranny, oligarchy, and ochlocracy. The reference is obviously to the *Politicus;* but the word "ochlocracy," of which some modern political writers are very fond, is not used by Plato (who applies "democracy" to both good and bad forms), and appears not to occur in any author before Polybius.

There are some Italian phrases which should, perhaps, have been translated for the "English Reader," whom Professor Flint, like Mr. Merz in his *Leibniz,* possibly credits with too much of his own knowledge.

D. G. RITCHIE.

The Metaphysics of the School. By THOS. HARPER, S.J. Vol. III., Part i. London: Macmillan, 1884. Pp. xix., 414.

This third instalment of Father Harper's commentary on the Ontology of Aquinas as reproduced and reconstructed by him, carries on the discussion of Aristotle's "Causes of Being". "Matter" and "Form" having been disposed of in Vol. II., the doctrine of "Efficient Causes" falls to be considered here, and is in these 414 pages treated of in minute detail, with abundant fresh illustrations drawn from the natural sciences as well as from the facts of common life and from less customary experiences concerning angels, fascinations, evil eyes and the like. The only kind of "efficient cause" not dealt with in this part is "Free-will," which is left over to the first three or four hundred pages of Part ii., as the author wished to give "due prominence to a question of such paramount importance . . . more particularly in view of the fact that the most strenuous efforts have been made by a certain class of writers to erase the idea and term out of our modern 'philosophy'." It is needless to tell those who can read between the lines of this proposal, that F. Harper keeps true to his purpose, in presenting the philosophy of the School to the English-speaking world, of reconciling the forward-looking aspects and tendencies of to-day's life and thought with the past and present orthodoxies of the Church, the State and Society. From a long note on and against John Stuart Mill, it may be gathered that the war he wages is against those "whose writings tend in any way towards the eventual subversion of those established principles of religion, morals, political and social order, on the ruins of which they confidently hope to build their new temple". He is a thoroughly trustworthy and fairly consistent appraiser of things past and exponent of the rationalistic compromise of mediæval churchmen which is called "The Metaphysics of the School". He is also quite consistent and thorough in his demand that the reconcilement and peace he warmly desires and so diligently and skilfully works for, shall come by what would be in substance and effect the unconditional surrender of the Future and Man to dogmas, that may in truth be dead and without help in them though in his pages so well-preserved and life-like. He seems to forget that, while the Future is child and suckling of the Past, there may be such a thing as superlactation, and that there is a time to wean as well as a time to put to nurse.

But all this has been virtually said in MIND twice over about the former volumes of F. Harper's work, and may now go without further saying. So, too, his axioms and method and, to some extent, even the particulars of scholastic exposition and argument in this Part, have been touched upon in the two previous notices. What remains new and noticeable here, is a polemic against "The Atomic Theory," but chiefly where held in crudity and finality; and, perhaps, there might be added an appendix on "the concord" between scholastic and modern embryology. This is partly a concord of that very general and vague kind which more or less obtains between the best common-sense and the happy guesses of genius on the one hand and natural science on the other: thus, "Modern botanists agree with St. Thomas that the highest natural operation of plants is that of reproduction". But it is much oftener an agreement to differ in details, or to allow the Saint to roam in free speculation far beyond the little space of solid fact and fairly confirmed theory which ordinary men of science have cleared and fenced: thus, "The *active* principle is in the *sperm*-cell," "the *active* virtue from the *soul* of the *male* parent". This is quite uncertain if not unmeaning, and is rather ungallant to boot, but falls in with the subtle masculinity of mediæval theology and of the saint's polity worldly and otherworldly, and no significance or alignment is too subtle or remote for his regard. Then, "vital operations in the embryo (are) not from the mother but from the *soul* of the embryo," and its "*vital spirits* (are) directive cause of development," and so on with the curious drama of souls and spirits and "formative virtue" in generation. Much of this is "metaphysic" of the most transcendent sort in masquerade, and as such out of the plane of science altogether. And, for the rest, it must be said that of these matters we know nothing for certain, if anything at all; for, if they are above the horizon they still only just glimmer and fade in the debateable cloud-land that borders vision. Content, patience, reserve, do not seem to be words of the School, which forgets that faith may be directly as doubt and inversely as dogma. The immense painstaking and the remarkable skill with which F. Harper has collected and manipulated biological facts and fancies, call for notice, but the conglomeration that results refuses to be charmed by him into a living organic whole of thought with the quasi-physiology of his school. There always comes in a forbidding of the banns and the union is checked short of vitality, as where, on p. 152, the speculative biologist is pleasing himself with the "concord" about natural evolution of living forms without "the direct Agency of the First Efficient Cause," when St. Thomas abruptly steps in and "makes an exception of the *human* soul" or life.

It may be admitted, however, that Father Harper is more successful in war than in peacemaking; and his criticism of the atomism of speculative physics, as ordinarily held and understood, is worthy of most careful consideration and of our respect and reservation of judgment even where we do not quite follow him. Coming after Mr. Stallo's recent book, which owes so much to Kant's *Metaphysische Anfangsgründe der Naturwissenschaft*, a great deal of it has been anticipated in detail, but its standpoint is on the whole different, and, perhaps, as an alternative one, valid at least for provisional and destructive purposes. It would be interesting and instructive, if there were space, to compare the animadversions of these two critics. They both agree in this, that "the question touching the ultimate constitution of bodies is beyond the sphere of physics," and "must be left to the decision of the Supreme Science," though they are not at one as to what that is in prime assumption and method; and yet they are both nearly willing (Father Harper almost if not quite so, p. 332) to let physicists use their atomic theory meantime as an explaining expedient, provided they do not hold it to be "substantially true". Yet even the latter is not always quite assured of the serviceableness of this "ingenious" and "purely ideal" device, in fact many times half withdraws his permission, as on pp. 335-341, where he remarks on the lack of "direct physical evidence" in favour of the provisional hypothesis, the doubts of distinguished chemists as to its truth and use (quoting Cooke and Miller), the anomalies and inconveniences it has led to in the modern basis of chemistry; and concludes that the science might very well have come, and would remain "unimpaired," without the theory in question. In this context what he says about the law of Avogadro specially deserves attention. Unlike the laws of Mariotte and Boyle, it presupposes the truth of the molecular theory, though it is based on a fact that is independent of it or any other hypothesis. There are facts which he very well shows are irreconcilable with it; for, in summary, "the quantivalence of one and the same element changes . . . even relative to one and the same component". And yet this law of Ampère or Avogadro holds, according to Prof. Cooke, "the same place in chemistry that the law of gravitation does in astronomy"! Again, to the *Aberglaube* of the atomists our author attributes an explanation of isomerism entirely unsatisfactory. Confess your ignorance and wait, he says, rather than accept such very artificial magic. Be content to refer the symbols and ratios at present in use to sensible *quanta* and not to "supersensuous" units, which the metaphysical atoms and molecular assemblages of atoms are; and you will find them quite as intelligible and valid, nay more so. "Affinity, proportion, and the relation of matter (mass?) to volume," the three foundations of chemistry, will still stand fast and sure. In these pages the two questions of the truth of atomism and its validity are mostly interwoven, and very naturally so, as what is not true can scarcely be useful, nor what is useless be true; and in this parallel treatment one may be willing to go with F. Harper without serious risk of confusion. This applies to the two pages of "Vacuum" and "Actio in distans," by no means all vacuous or far-fetched pages, in which he has used the very finest edge of his dividing mind, and which come into his criticism of atomism thus:—The atomic theory in modern chemistry presupposes vacuum and its corollary, action at a distance, "in order at once to defend the isolation of molecules and atoms, and the existence of chemical action".

Then, through page after page of recondite and exquisite disquisition, which we may not trace through all its windings and spaces, the two-faced sophism, absolute vacuum and distant action, is reduced to absurdity; and with it atomism. But surely this is to take scientists too seriously and punctually. Are we not all agreed that "Nothing is not," that Nothing-between is between nothing, that absolute emptiness is simply collapse and entire togetherness, that activity is indistance or presence, and that inactivity is the only true distance or absence, without any fine question of "potential" or "actual" presence or being, that when and where a thing acts, it is, and when and where it is, it acts? And, if we are so agreed and yet hold by atomism in some fashion that gainsays these axioms of the organised common-sense of Philosophy, then it is only so much the worse for our tenet. That is all. But F. Harper's scholastic atomism does not suffer from such collision, and yet only because he encloses it for safety in that supersubtle air of "virtuality," which suffocates some of us and is, perhaps, all too thin for any ordinary mortal breathing.

Here is his solution, which, for shortness, must be left to explain itself. "There is a physical minimum, which is physically atomic." It exists. Yet, only "an atomic theory which maintains the *virtual* atomicity of bodies is admissible," and "the theory which maintains that bodies are constituted of *actual* atoms and that the atoms of the constituents integrally remain in the compound" is false. Water is not H_2O. It does not "*consist*" of these, though they have lent their formed matter to be consumed by water's "substantial form" or informing soul in the making of itself to be quite itself, that is to say, into a "*new* substance". In this single instance, you have "*potentialiter*" the whole of the School on genesis. And the cardinals of the doctrine are Aristotle's "matter and form": "in the beginning," and all along to the end, not atoms, molecules, forces, but "substantial form and primordial matter". But are we really any happier with our author's "Philosopher" and his "Saint" than with the crude atomists of to-day? What is this venerable teaching at its best but voluminous and elaborate restatement of sensible fact and common thought and speech about it—a learned rendering of the vernacular of mind, displacing with somewhat prosaic speculation the wondering regard and search of the child and the poet, smothering with a false guise of knowledge wise and healthy scepticism and agnosticism, and supplying a foreign furniture of the mind which rather lends itself to the uses of the sophist than of the philosopher? And thus, with its air of exactitude, and its finer edge and more precise straightness than unsophisticated sense and imagination will bear, it "oversteps the modesty of nature," and becomes a distraction, a dissipation, an excess. We may be debauched with even moderate metaphysic. And with F. Harper's thoroughgoing kind there is besides always the risk (as on p. 408) of a boomerang-like theologic counter-stroke, telling back against the very philosophy of science which he professes and, it may well be believed, sincerely seeks to aid and advance.

Suffering from this misadventurous Parthian shot out of his final page, one may turn for healing and comfort to the thought, that Experience on a vast and secular scale moves on like a sea, soaking, sapping, sinking, founding. Of no avail are pious zeal, infinite labour, erudition, bright and clear style, copious and apposite illustration, shapely and plastic method, subtle patience in distinguishing, defining and dovetailing, like Father Harper's, if his works and days do not tell for the things and causes that are saved by living and moving onward and upward with the great tide. And, with the "confidence" of the "gnostics" he derides (p. 205), or rather of those called agnostics, who do *not* know and know they do not, yet believe and hope, one may dare to foretell of these books, however worthily conceived and well-meant, and of such as these, that they will only remain as a curious kind of submerged museum or necropolis; or, put more aptly, as a sunken reef of rocks that are now worn bare and never—not even in their own age—supplied the true nourishment and proper soil of the saintly, noble and human lives that flourished then as now, and that will, we hope, more and more abundantly flourish, bearing more perfect fruit, when "the Metaphysics of the School" is summed up in an epigram and laid aside, or is shut up and shelved like an antediluvian fly in amber,—if, indeed, it is not washed clean out of the remembrance of man, and left behind and below in his upbuilding, a hidden sediment and residuum, effete, dead, and buried without hope of resurrection.

J. BURNS-GIBSON.

A Text-Book of Deductive Logic for the use of Students. By P. K. RÁY, D.Sc. (Lond. and Edin.), Professor of Logic and Philosophy, Dacca College. Calcutta: Thacker, Spink; London: Thacker, 1884. Pp. xv., 335.

This work is doubtless primarily intended to meet a demand for logical training in Dr. Ráy's own country; and it speaks well for logical study in India that it should have called forth a text-book of such a high degree of merit as the one before us undoubtedly possesses.

The author commences by calling attention to the three opposed views of Logic, of which in England, Mansel, Mill, and Whately may be regarded as the most distinctive representatives; but, as he holds that they all contain elements of truth, he does not confine himself to any one of them to the exclusion of the two others. Now it will be generally agreed that a reconciliation of divergent doctrines, if it can in any way be effected, is especially desirable in an elementary treatise: since, on the one hand, controversy on fundamental points is to the beginner distracting and confusing; while, on the other hand, the dogmatic neglect of all opposed views may lead to narrowness and incompleteness of treatment. At the same time, the method of reconciliation is in danger of leading to inconsistencies, and it may involve a certain straining of terminology; from the latter of which difficulties at least Dr. Ráy has not entirely escaped. I do not, for example, think that any defence can be found for the statement that "regarded objectively, that is, as something existing in things or objects, a concept is an attribute or a collection of attributes in which a number of individual things or objects agree" (p. 5). This passage involves a confusion of phraseology, if nothing more; and it is calculated to suggest to the student a metaphysical doctrine which it is hardly probable that the author himself holds. Is it not again misleading to say that "in Material Logic . . . a concept must be a collection of actually existing attributes, a judgment an actual relation between two real concepts" (p. 15)?

On the whole Dr. Ráy's own exposition of Logic is on nominalist rather than on conceptualist lines. He says little concerning the psychological character of concepts, but he devotes two chapters to a discussion of terms, following in the main Mill's method of treatment. The following statement indeed sounds ultra-nominalistic,—"With a system of perfect definitions, a science would attain perfection" (p. 61). The context, however, shows that the author supposes the denotation of the terms fixed before their connotation, and he implies that we must know completely the characteristics of the objects with which the science is concerned before our definitions can be regarded as perfect. Now up to a certain point it is doubtless true that as a science makes progress, its definitions make progress too; but it should, I think, be added that at least in the more abstract sciences the definitions may reach their culminating point of perfection before the same can be said of the sciences themselves. Dr. Ráy charges Mill with treating verbal propositions as of no importance; but whatever may be the justification for this charge, he himself appears to go too far in the other direction when he says that "a verbal proposition does not merely explain the meaning of a name, but expresses, like a real proposition, a relation between phenomena or attributes" (p. 117). The writer must be again thinking of the case where we seek to give a connotation to a name of which the denotation is already definitely fixed. But this is hardly what Mill has in view when he is talking of verbal propositions; and we ought not to overlook his treatment of definitions in his Fourth Book. He shows clearly how in practice definition is often a question of things, and not merely of words.

In his treatment of abstract names Dr. Ráy departs from the view of most logicians and regards adjectives as sometimes abstract, namely, when they qualify abstract nouns (p. 38). This is a case that has perhaps been generally overlooked, and it requires some consideration. I should, however, prefer to adopt the other alternative and say that when the name of an attribute is qualified by an adjective the attribute itself then passes into the category of things that possess attributes and its name therefore becomes concrete. This view, of course, involves the admission that the distinction between concretes and abstracts is not an absolute one. On another question connected with abstract names Dr. Ráy follows Mill in a view that I have always found very puzzling, namely, that some abstracts possess both connotation and denotation; I cannot add that he has made it clear to me why virtue and beauty should be regarded as connotative (p. 41), while colour, weight and humanity (pp. 42, 47) are non-connotative.

Professor Ráy's discussion of Immediate Inferences is more complete than that of most text-books with which I am acquainted, and his views of Obversion, Contraposition, &c., are clear and consistent. The value not indeed of this part of the book only but of the whole of it is enhanced by the large number of useful examples with which most of the chapters conclude. It is only in his treatment of Hypotheticals that I think the author not quite successful. "Whenever A is, nothing other than B is," should hardly be given as the obverse of "If A is B is," since "other than" is not equivalent to "inconsistent with," and the existence of something other than B is compatible with B's own existence. The obverse of the given proposition should rather be stated,—"If A is, it is not true that B is not".

One distinctive feature of Dr. Ráy's book is the extensive use that he makes of what are commonly known as Euler's diagrams; and, although he mentions Hamilton's use of these circles with apparent approval and at any rate without criticism (p. vi.), he does not fall into Hamilton's error of attempting to represent by a single pair of circles A, O, and I propositions, which cannot be adequately represented by less than two, three and four such pairs respectively. Dr. Ráy is very successful in his application of the diagrams to immediate inferences and the different syllogistic moods. If I have a criticism to offer here, it is that he goes too far in his attempt not merely to illustrate the syllogism by this means but to distinguish by its aid the valid from the invalid moods. The attempt meets with success, but the working it out is exceedingly laborious. In applying the diagrams to some of the syllogistic rules (pp. 173-179), I am doubtful whether the author shows the method to be equally adequate. I may add that the interpretation of the circles, when the terms contained in a proposition are read in connotation (pp. 124, 125), is not very satisfactory. It is inevitable that in using diagrams of this kind we should fall back on the denotative reading. With regard to the form in which the author states the syllogistic rules, I would remark that, having given as Rule 6 that to prove a negative one of the premisses must be negative, it is surely superfluous to add as Rule 7 that if both the premisses are affirmative the conclusion must be affirmative.

There are several points of interest in Professor Ráy's book to which I should have been glad to call attention, but I must now content myself with a brief reference to a note on Inductive Reasoning with which the work concludes. It has been for some time generally recognised that Mill's so-called Inductive Methods partake largely of the deductive character, and Dr. Ráy brings this out very clearly. Except, however, as an *argumentum ad hominem* it is hardly satisfactory to regard all inductions as reducible under one or other of these methods; and I am not quite prepared to admit that our author has succeeded in establishing that "all inductive reasonings may be reduced to the syllogistic form".

J. N. KEYNES.

Critique des Systèmes de Morale contemporains. Par ALFRED FOUILLÉE. Paris: Germer Baillière, 1883. Pp. xv., 411.

A critical estimate of contemporary moral systems might be written in either of two ways, according as the historical interest or the enforcement of the writer's own views predominated. In the former case, different systems should be treated in their historical connexion, and the different aspects which the same or related moral notions present should be pointed out. But, if the criticism of systems of morality is only a stage in the proof of independent ethical opinions, a different method might fairly be adopted, and historical systems attended to only in so far as they discuss the topics which enter into the critic's proof of his own theory.

M. Fouillée attempts to combine these methods. He examines minutely the details of certain systems, and he founds certain positive conclusions of his own on the result. After a preface in which he says that he will endeavour "to develop different doctrines as they represent the logical positions of thought and the gradations of its successive points of view," he proceeds to his critical review of ethical systems.

In Book i., which deals with the ethics of Evolution and Darwinism, he argues that intelligence as well as pleasure is a motive to action, and that the tendency of reason to universality is not satisfied unless others as well as the individual agent are happy: this is the "intellectual motive" which the English school have omitted. The positivists (Book ii.) recognise altruistic and (usually) disinterested sentiments; but though their doctrine is "a useful transition from naturalism to idealism," it affords no way of deciding between egoistic and altruistic impulses. The "independent" ethics of Vacherot, again, takes duty—which implies liberty—as its fixed point; but although this school discards metaphysics, both duty and liberty are metaphysical notions. The "semi-Kantism" of M. Renouvier, it is argued in Book iii., can obtain no support without returning to Kantian ethics pure and simple. In the following Book, Kant's ethical writings are subjected to a detailed examination, in which it is argued that he takes the whole question for granted, that he never shows that pure reason is practical, but introduces into his ethics the dogmatism his criticism of metaphysics had discredited: "Everyone has remarked that there is a change of view between the two *Criticks;* but this change is much more extensive and important than ordinarily believed" (p. 129). The succeeding Books discuss the pessimism of Schopenhauer and Hartmann, "spiritualist" ethics, chiefly as represented by M. Janet, æsthetic and mystic ethics, and the theological ethics of M. Secrétan.

It would require too much space to discuss fully the way in which the author deals with these different subjects; and I shall therefore confine myself to one or two critical remarks. On the whole, it seems to me that M. Fouillée's book, while abounding in acute criticism, is not always successful in keeping the fundamental notions of a system well in view, while the moral theory ultimately arrived at, by which other systems are to be supplemented or superseded, bears traces of having been adopted somewhat hastily.

The vigorous and—in many points—successful criticism of Kant's ethics, is yet wanting in a true estimate of the relation between his speculative and practical criticisms. By representing this throughout as a parallelism, it is easy enough to make the conclusions of the two *Criticks* look opposed and arbitrary. But the *Critick of Practical Reason* rests upon the ideas ultimately found to be involved in speculative reason. If experience implies ideals of reason which cannot be contained by the categories of discursive thought, M. Fouillée's question (p. 130)—If experience reigns in the domain of knowledge why not also in that of action?—is no longer unanswerable. For the same reason it is seen to be misleading to say that "in the sphere of speculation, pure reason is prisoner at the bar and experience the prosecutor; in the sphere of practice all is changed: empiricism is the accused and pure reason the accuser" (p. 131). Again, when M. Fouillée says, speaking of Schopenhauer (p. 246), "On the one hand, he has not ridicule enough for the Kantian idea of duty; on the other hand, he cannot sufficiently admire the Kantian theory of liberty, yet this has neither value nor even sense apart from the idea of duty," neither Kant nor Schopenhauer is quite fairly dealt with. True, it is duty or the moral law that, with Kant, at once certifies to freedom and gives scope for it; but free causality has meaning and even regulative value for him, apart from its ethical necessity; while Schopenhauer's doctrine of the will originates in a criticism of the Kantian categories.

The ethical theories which M. Fouillée regards as of chief importance are the Kantian and the theory of Evolution. His treatment of the latter is, however, somewhat scanty. He accepts the facts it has to offer; but urges that, with conscious beings who can form an idea of the end of their activity, this idea is itself a tendency to its own realisation: "the idea of morality is morality begun". M. Fouillée speaks of this as his doctrine of "idea-forces"; and, though perhaps not very original, it seems to me both true and important as correcting the tendency to treat the process of development in a purely external way.

M. Fouillée himself holds that morality is founded partly on positive knowledge, partly—and here he is, so far as I am aware, quite original—on doubt. Positive knowledge would seem to be the basis of morality so far as the latter points to self-interest. The limitation of this self-interest must come from—doubt. "Almost all the systems of morals we have passed in review," says M. Fouillée (p. 389), "whether belonging to the Kantian or to the Evolutionist side, still admit a certain transcendental dogmatism." This is scarcely correct, however, and the statement is soon modified by the author. No Evolutionist writer—so far as he has shown—admits "transcendental dogmatism" in morals; and Mr. Spencer is taken sharply to task for not including among the "data" of ethics the Unknowable which plays so striking a part in *First Principles*. As an *argumentum ad hominem*, this is perhaps fair enough; but the charge cannot be laid to the account of other Evolutionists who are guiltless of any such traces of "transcendental dogmatism" either in metaphysics or in ethics. M. Fouillée himself does not admit this transcendental element. He holds that knowledge is, as a matter of experience, limited: but limited by experience itself. And this limitation is for him the foundation of morality. "Since," he says, "we do not *know* the essence of all things, nor consequently of good itself, it is unreasonable to act as if we had penetrated it, as if we were certain, for example, that pleasure, interest, power, were things in themselves, the fundamental and essential reality, the last word and secret of existence. The limitation of sense-egoism thus follows logically from the limitation of sense-knowledge" (p. 391). It is difficult to see how it can have escaped so acute a critic of other theories as M. Fouillée is, that a consideration of this kind could, at most, only paralyse activity, not moralise it. Doubt as to the absolute reality of one's own pleasure would equally extend to the pleasure of others. In particular, there would be no sufficient reason for the individual to limit his own action so as not to interfere with the liberty of others, unless by having recourse either to the "transcendental dogmatism" that the rights of all are equal, or to grounds of general utility.

W. R. SORLEY.

Tonpsychologie. Von Dr. CARL STUMPF, Professor der Philosophie an der deutschen Universität zu Prag. Erster Band. Leipzig: Hirzel. Pp. viii., 427.

Dr. Stumpf is favourably known as the author of an essay on the psychological origin of the Space-perception *(Ueber den psychologischen Ursprung der Raumvorstellung)*, in which he proved accurate scholarship, fineness of observation, and considerable ingenuity both in criticism and in construction. He has now essayed a more considerable task. This is a complete psychology of Tone as a basis for musical theory. This task on the scale conceived by our author can hardly be said to have been attempted before. Helmholtz's classical work, though it certainly penetrates into the psychological territory, is in the first instance a physico-physiological treatise. The most complete treatment of the psychological base of music is the work of Mr. E. Gurney, which seems oddly enough to be unknown to Dr. Stumpf. Even this weighty volume, however, does not go into certain departments of the psychology of tone as defined by the later writer. The difference of aim in the two works is worth noting. Both authors are lovers of music, and attracted to the subject on this side. Dr. Stumpf tells us in his introduction that in his youth he pursued music with enthusiasm, and purposed making it his calling; and from his work we can easily see that he has not only a wide acquaintance with the art, and a fine feeling for its effects, but a good deal of very special technical knowledge concerning the mode of production of sounds, the usages of musicians, and so forth. Yet his work is not throughout immediately concerned with music, as Mr. Gurney's is. The musical psychology is reserved for a second volume, and in the first we have an elaborate inquiry into the nature of sensation and of sensuous judgment, with a special reference to tone-perception. Thus his work has a scientific importance quite apart from its bearing on music. Indeed, if we bear in view what the author tells us about his musical proclivities, we cannot but admire the rigorous impartiality with which he has dealt with every phase of his subject. So full and penetrating is the treatment that it is pretty certain to count as a solid contribution to the pure science of psychology.

The appearance of a work like this is in more than one respect suggestive. It is something, to begin with, to know that the psychology of the senses has been brought to the point which allows of a seriously conceived attempt to supply a scientific groundwork for musical art. A still more important reflection is that, owing to the rapid extension of psycho-physical research, the work of expounding and interpreting the facts reached is necessarily growing more and more divided and specialised. A reader of English text-books may be surprised to hear of a work of two volumes on Tone-psychology. But our author amply justifies his selection of a certain circumscribed group of psychical phenomena for special consideration. And he has done students of the science a valuable service in bringing together from inaccessible treatises and journals the most important results of recent investigation. On reading a work like this one naturally asks: When will such special psychological work be needed and encouraged in this country? The science must take a much higher place both in academic and in popular estimation if we are to emulate the Germans in work of this kind and keep our old place in the van of the psychological army.

The first instalment of Dr. Stumpf's work falls into two Parts: a shorter and introductory one on sense-judgments in general, and a longer one on judgments respecting successive tones. The estimation of relations between simultaneous tones is along with that of musical intervals reserved for the second volume. The first division, though much the shorter, is so important that I purpose devoting special attention to it in this notice.

It is to be noted at the outset that the work is on tone-judgments, and not like Helmholtz's, on tone-sensations. This brings out the fact that the author approaches the subject from the psychological point of view. By judgment he understands the reaction of the mind on the sensations, the apprehension of their quality and intensity, and the relations of these to those of other sensations. Judgment thus covers what Dr. Bain calls the discrimination of sensations, and Mr. Spencer the classification of them. To say that a tone is one of a particular pitch is to judge. It is thus evident that a judgment does not always presuppose reflection, and is not in all cases fixed in language. Judgments concerning difference or similarity link themselves on immediately to sensations. They are habitual and never wanting in the case of the mental life of the adult. This fact has given rise to the doctrine of the relativity of sensation, which Dr. Stumpf forthwith subjects to a searching criticism. A number of different forms of the theory are distinguished and separately handled: *e.g.*, "every sensation is necessarily referred to another, there are no pure sensations"; "sensations may exist in the mind without being discriminated, but it is only by such discrimination and reference that they become ingredients of consciousness"; "sensation is itself something relative: we feel not absolute contents but only relations, differences, changes." In opposition to these and other forms of the doctrine our author maintains that, though closely connected, the sensation and the reference *(Beziehung)* of the sensation are perfectly distinct. We must assume the existence of non-referred sensations in early life at least, for there could have been no reference till after a plurality of sensations, and such non-referred sensations are in a manner in consciousness.

Having thus defined sense-judgments, Dr. Stumpf proceeds to assign the conditions of their trustworthiness or credibility *(Zuverlässigkeit)*. Since in ordinary cases the judgment deals not merely with the sensations but with the external objects, it has an objective import. And the credibility of such a judgment considered with reference to the correlative objects is distinguished as "objective credibility". In discussing the conditions of such credibility we have to distinguish between two classes of sense-judgment: (1) such as are responses to questions to which either alternative answer may according to circumstances be true or false; *e.g.*, Which of these two tones is the higher? (2) those corresponding to questions to which an affirmative answer is in all cases wrong and a negative one right; *e.g.*, Are these two tones perfectly like or equal in pitch? Is this interval a perfectly pure one? The conditions of the case exclude the possibility of this, both in the external processes and the related internal sensations. The objective credibility of the first class of judgments is identical with their probability, and is determined by the number of right and wrong answers in a series of judgments. That of the second class is identical with the degree of approximation of the affirmations to the truth. In all cases the objective credibility of a judgment is conditioned by two universal factors: *(a)* sensibility, or the degree in which our sensations correspond with the stimuli, either in respect of range *(Umfangs-empfindlichkeit)* or degree of difference *(Unterschieds-empfindlichkeit)*; *(b)* subjective credibility, that is the credibility of a judgment in respect of the correct apprehension of sensations as such. Dr. Stumpf insists on this last source of error even in cases where attention is complete. "Where lies the guarantee that through gradual increase of attention all and every difference of the sensations must become recognisable by us?" In respect of sensibility to difference this is, he thinks, demonstrable. Thus, in the case of sensations of pitch, by making the differences in the number of vibrations small enough, we obtain a series of sensations which can no longer be discriminated by the most observant and practised observer. And if the limits of observation were also those of sensibility, it would follow that all members of the series were alike, that is to say, there would be only one sensation of tone. It follows that there are differences among sensations smaller than the least perceptible. Not only are there unnoted differences of sensation, there are unnoticed and altogether unnoticeable sensations, *e.g.*, some of Fechner's "negative sensations"; elements in a composite clang-sensation which cannot be detected. Subjective credibility is affected not only by this circumstance of the limits of observation at its best but also by other circumstances, as the degree of attention, the accuracy o the reproductive process in comparing successive sensations. It is in these two factors mainly that the effect of practice shows itself. All errors in sense-judgments must according to this view have their source in one of two regions. "Either we see or hear falsely, or we interpret falsely what is seen or heard." The general errors in judgments of Class I. are due to defective subjective credibility, those in judgments of Class II. to defective sensibility, more particularly discriminative.

We come now to the measurement of the credibility or degree of trustworthiness of judgment. Objective credibility is measured by the well-known psycho-physical series of trials. These determine in the first place nothing respecting the relations between the stimulus and the sensation (as was first erroneously supposed), but simply "how large the difference or what the ratio of two stimuli must be in order to bring about judgments of a certain degree of probability (Cl. I.) or of exactness (Cl. II.) under definite circumstances, *e.g.*, in a definite region of tone in the case of a particular individual". We may, however, measure the separate factors, namely, sensibility and subjective credibility. The discussion of the second, which, as the author remarks, is of much the greater psychological value, is particularly interesting both by way of showing what can and what cannot be done. The number of psychical circumstances which complicate the judgment is well brought out. Thus, the author refers to a distinguished painter who was quite incapable of judging of colour in the manner required by the physiologist and psychologist. The measurement of sensibility presupposes that we know the subjective credibility. We ascertain this by deducting from the objective credibility, which is all that is directly measurable, that which is due to subjective credibility. For this purpose, judgments of Class II. and individuals of the highest subjective credibility are most suitable. The discussion of the measurement of discriminative sensibility leads on to a consideration of the knotty point whether the just noticeable differences of sensation in different regions of stimuli are to be regarded as equal or only as "equally noticeable". The relation of the author's view of the measurement of judgment to Fechner's psycho-physical theory is then touched on. This last is said to constitute a chapter and, in the order of investigation, the last chapter in a doctrine of measurement of judgment. The author's conception of the general methods to be pursued in such measurement is unfolded more fully in an appendix to this section.

Next follows a special section on attention, practice *(Uebung)*, and fatigue. With respect to the nature of attention all that can be said is that it is identical with interest, and that interest is a feeling. The conditions of attention are briefly dealt with, after which its effects are considered. The author takes special pains to show that attention does not intensify or add to the strength of an impression, by arguing that if this were so it would tend to confuse rather than aid judgments respecting intensity. By practice, is meant the result of exercise, an acquired disposition to judge more rapidly, definitely and with greater credibility. The effects of practice show themselves in two directions—the improvement of the power of reproducing impressions, and of the power of concentration. The general course of practice, that is, the varying degree of rapidity of progress (from slow to rapid, then to slow again) till the maximum-point is reached, are then discussed in the light of this theory; also the facts of concomitant or transferred increase of facility (*Mitübung*), as when, by the exercise of the right hand in learning to write, a considerable aptitude of the left hand in symmetrical movements develops itself. These facts show, as Volkmann pointed out, that practice in sense-judgments does not act upon the external organs or alter the degree of sensibility, a conclusion which, our author adds, is borne out by the varying course of progress. The antagonist of practice, namely, the action of fatigue on sensibility and on attention, is then slightly touched on.

So far the author has been considering immediate sense-judgments on which we judge of sensations and of their relations by direct inspection and reproduction. In addition to these there are mediate judgments, where we decide by help of external or heterogeneous criteria which we know from experience to coexist with the impressions with which we are concerned. Thus, we can judge of the presence of certain upper-tones in a clang by the peculiar clang-feeling, of the height of a tone by the muscular sensations experienced in reproducing it, and so forth. From these mediate judgments, further, the author distinguishes transferred *(übertragene)*, as when we judge that a table looked at sideways is round, when we mean that we should see it to be round if the optic axes were at right angles to its surface. In this way we obtain the following scheme of judgments (A) Direct, (*a*) Immediate, and (*b*) Mediate; (B) Transferred.

An interesting section follows on analysis and comparison. There are four ground-relations in or between sensuous contents about which we can judge, namely, plurality, rise or increase, similarity, and coalescence. The noting of a plurality is called an act of analysis; that of one of the other relations, an act of reference or comparison. In addition to these judgments of the first order, there are others of a higher order in which we decide about relations of relations. Some valuable observations are made respecting the determination of these relations generally, *e.g.*, that the related contents must simultaneously present themselves to the mind either as actual sensations or as images. The difficulties of physiological explanation with respect to these processes of analysis and comparison are referred to, not without a certain touch of playful irony. The relations are then considered separately. Under analysis, the relation of the process to discrimination is touched on, but the highly interesting question of its relation to assimilation or classification is not handled. The idea of rise or increase is illustrated best in the intensities of all classes of sensation. The question whether it should be applied to qualities, *e.g.*, of tones, is reserved. Particularly instructive is the sub-section on similarity in its relation to equality and to difference. Similarity cannot be conceived by the psychologist as perfect equality; this would be to confuse measurement with mere perception. Similarity of composite wholes or composite similarity is dealt with under its different forms; then similarity of simple contents or elements. Wherever a sum of sensuous contents is apprehended as a series, as in the case of tones, perceptions of simple similarities are involved.

In a final section of this First Part, the author considers two classes of judgment of peculiar interest in relation to tone-psychology, namely, comparisons of distance, and judgments which presuppose a standpoint. The idea of distance is based on the fact that similarities present themselves in a graduated series. By a distance we mean a certain degree of dissimilarity. The relation may hold between intensities or qualities of sensations or between space and time points. It follows that every judgment respecting distance is at the same time a comparison of distances. We are able with a certain degree of credibility to judge not only that one distance is greater than another but that two distances are equal, *e.g.*, the distances of the compass-points by the aid of the tactual sense in certain experiments of Fechner. A curious point arising here is, whether it is necessary in judging of a distance to represent in imagination the intermediate sensations, in other words the transition from one extreme to another. The author argues that this is not absolutely necessary to a judgment respecting distance. In the case of smell and taste, for example, we may be in a position to say that one pair of sensations are more like one another than another without being able to fill up imaginatively a series of intermediate steps. The author then considers the conditions most favourable to distance-comparison, *e.g.*, absolute magnitude of the distances compared, the presence of a common term in the two pairs compared, &c. The idea of a standpoint is illustrated in judgments respecting time and space, with a hint that judgments about tones will supply a further illustration.

I have purposely given the main outline of Dr. Stumpf's theory respecting sense-judgments before attempting any critical estimate of its value. A word or two may be premised respecting his plan and arrangement. It seems to me that the author in this introduction has given us something more than an introduction and something less than an adequate self-contained discussion of principles. Subjects are opened up and dealt with in a fragmentary way. This is emphatically true, for example, of the subject of attention and its relation to sensation and to judgment. In some cases, again, we have to look for the author's general theory in the second part, that is to say in connexion with the particular facts of tone-judgment. This remark applies for instance to the discussion of so important a point as the threshold or liminal intensity of sensation, a clear conception respecting which, one would say, is essential to any such doctrine of sense-judgment as is here unfolded. So much is this commingling of the general and the special the case that, in reading the introductory part, one is apt to be irritated by the frequent forward references and hints of what is coming. In addition to these difficulties in getting at the author's theory as a whole, there are others arising from the want of any clear simple arrangement. There seems to be a haphazardness in the sequence of topics. This would probably have been removed by the addition of a synthetic to a purely analytic treatment, a progressive unfolding of a doctrine of sensation in its relation to stimulus, of attention and its effects, and finally of sense-judgment and its several forms.

The above brief account of the author's theory will suffice to indicate its great psychological importance just now. Dr. Stumpf is thoroughly abreast with the latest results of psycho-physical research. And he has given a new turn to the discussion of the problems involved, by emphasising the psychical complexity of phenomena which the mere physiologist is apt to regard as quite simple. The whole conception of sense-judgment, though of course not altogether new, is a real contribution to a sound psychology of the senses. Further, his attempts to distinguish the different factors in the formation of sense-judgments and to apply the methods of Fechner and others to the determination of their value must be welcomed by all those who desire to see psychology transformed into what Kant said it never could be, an exact science.

At the same time it strikes me that, in maintaining the existence and importance of the internal intellectual element in sense-perception over against mere sensation, the author has fallen into a kind of psychological dualism. Sensations are conceived as real things having a perfectly definite content independently of the mind which may or may not observe them. Dr. Stumpf makes a show of contending that the sensations, the existence of which he thus asserts, are not "unconscious," but this can hardly be taken seriously. An impression which I cannot detect with a full act of attention cannot surely have any individual existence in my consciousness, however wide we make the region of consciousness. The author adopts a not infrequent tone of irony when dealing with the objections of Delbœuf to such a conception, but he seems to forget that Fechner, towards whom he is of course always most respectful, is quite as clear as Delbœuf on this point. Is not Fechner's conception of a tendency to a psychical result, due to the presence of certain of the co-operant conditions, much more scientific than that of an actual result of which we can know nothing, even if the very conception of it is not self-contradictory? Surely in psychology it is time to recognise that in employing popular language and talking about sensations and attention to sensations we are speaking loosely. A sensation is a product of external and internal conditions combined. Its particular content is of course determined, largely at least, by the former, but this content is only realised when the internal conditions are added. Much the same line of remark might be followed with respect to the author's conception of relations of difference &c. among sensations. In a manner, of course, the difference is independent of our observation. That is to say, there are the conditions present for the perception of difference, supposing the supplementary internal conditions are added. These conditions involve a certain amount of difference in the stimuli concerned; and the simple recognition of this fact (whether its interpretation be physical or psycho-physical) at once gives us a solution to the puzzle about all sensations of pitch becoming one sensation with which the author, showing an excess of ingenuity not unprecedented in his writings, perplexes his unwary reader. It may be added that Dr. Stumpf, in his opposition to the relativism of Bain, Wundt and others, seems to fall into the other extreme of absolutism. To him the particular content of a sensation is something wholly independent of any reference to other sensations. This again in a manner is true, namely, that the physiological process concerned involves a tendency to a sensation of a particular kind and serves to determine its content. But here again the question may be asked: Would this content ever be realised apart from references more or less distinct to other sensations? Or to put it in the form selected by Dr. Stumpf: Could a child have a definite sensation of colour or tone the first time the corresponding nerve-centre was stimulated in the way implied? Does not a definite sensation involve, in close connexion with the act of attention which is its internal condition, a number of rapid half-developed references to past sensations, and does not this group of references help to give it its particular definiteness? Dr. Stumpf's idea of a definitely qualified sensation in itself out of relation to observant mind, and of an absolute sensational unit out of relation to other sensations, may perhaps be justified as a kind of mathematical fiction, of great service for his special purposes, namely, measurement of sense-judgment and its factors, but it hardly seems likely that he would be content with this view of its function.

A few words must suffice to indicate the scope of the Second Part. This, as already remarked, deals with the relations of successive tones. Judgments as to quality are first dealt with, apparently as those most easily obtainable, after which are handled judgments respecting intensity. Throughout this Part, save where the author makes an incursion into the domain of general principles, we have the results of special lines of scientific inquiry brought together and explained. The idea of distance as applied to a series of qualitatively unlike contents as tones is unfolded at great length. Of particular interest is the employment of mediate criteria in judging of tone-qualities. The author gives many experiences, a number of which were obtained by himself, tending to show that the muscular sense plays a less important part in judging of the pitch of tones than is commonly supposed. A similar tendency to disparage the part due to muscular sensations shows itself in the suggestive but not quite satisfactory treatment of the difficult subject of the height and depth of tones. This part of the volume by-the-by shows that Dr. Stumpf is not ill read in the history of music, ancient as well as modern. The author finds himself on congenial ground when seeking to give a precise meaning to the expressions "endlessness" and "continuity" of the tone-region. Among the conditions of credibility of judgments respecting quality, one which specially needs to be kept in view is the circumstance that the strength or intensity of a tone affects our judgment of its pitch. In general we tend to take the louder of two tones for the higher. This relation between pitch and intensity, which is dealt with in a characteristically fragmentary manner under different heads, is one of the most curious facts brought to light in this volume, and the explanation of it calls forth all the author's knowledge and fertility in suggestion. The results gained with respect to distance-judgments are exceedingly interesting. The great difficulty in obtaining pure distance-judgments is to eliminate the influence of interval-judgment. A musical ear cannot attend to the relation of two tones merely as one of dissimilarity if they present themselves as terms of a familiar interval. The exposition, which, as may be inferred from this brief account, is by no means easy reading, is pleasantly relieved by a curious section on tone-sensibility and tone-memory. Here the author's wide musical experience stands him in good stead. Among other striking topics here touched on are the phenomenon of double-hearing or unequal sensibility of the two ears, the special tendency, particularly among musically trained persons, to tone-hallucination, the relation of a good memory for absolute tone-quality (pitch) to the musical faculty.

The treatment of judgments respecting quality concludes with a full account of special series of experiments carried out by the author with a view to ascertain the capabilities of musical and non-musical persons in the estimation of absolute pitch, as tested by the question 'What note is this?', and of relations of pitch, as tested by the question, 'Which of these two tones is the higher?'. The four persons tested in the first respect (who included the author himself) were practised players of instruments (piano, violin, &c.). And, as might be expected, they displayed a high degree of trustworthiness. The recognition was best in the median region of the scale, and fell off towards each extreme. The effect of practice was to greatly improve the trustworthiness in these less peculiar regions. The introduction of any unfamiliar element of clang into the tone (as by giving it on an unfamiliar instrument) greatly interfered with the judgment. The author tested the power of judging of relations of pitch in the case of non-musical persons. The results were in many ways curious. It is certainly surprising, for example, to learn that cultivated persons could be in doubt as to which of two notes forming an interval of a third and even a fifth, and lying in the median region of the scale, was the higher. Most important is the result that the degree of trustworthiness is in general least in the lower region, reaches its maximum at some point in the median, and falls off very slightly in the upper. From a consideration of the effects of practice in different regions, the author argues that these differences of objective credibility are due not to unequal subjective credibility but to unequal discriminative sensibility, which, according to him, reaches its maximum at some point higher up than that of maximum objective credibility. This conclusion is naturally turned against the application of Weber's Law to tone-qualities. The fact that tones are well discriminated high-up in the scale, though ill recognised in respect of absolute pitch, is used as an argument against Prof. Bain's doctrine that retentiveness varies as discriminative power. Finally, the fact that discriminative sensibility is most perfect at a point higher-up than that of the average level of the human voice gives rise to some curious speculations, calculated to delight the evolutionist if they were only put forward more seriously, respecting the gradual lowering of the pitch of the voice during the development of the race.

The concluding section on the judgment of intensity is as full and interesting as that on the judgment of quality. Here too the conditions of credibility are clearly set forth. The difficult question of the lower limit or liminal value of intensity in its connexion with the nature of silence or stillness is handled in a fresh and suggestive way. A good many readers may be surprised to learn that, according to Dr. Stumpf, we are able not merely to say that one distance or degree of difference in respect of intensity is greater than another, but that one tone-sensation is twice or thrice as strong as another. All that is needed here is a distinct reproduction of a starting-point, namely, a sensation of minimum intensity, and the capability of estimating distances from this. This section, again, closes with an exceedingly curious account of individual differences in respect of sensibility to tone-intensities and acuteness of hearing and of abnormal disturbances of sensibility and imagination among musicians.

James Sully.

Freud und Leid des Menschengeschlechts. Eine social-psychologische Untersuchung der ethischen Grundprobleme von G. H. Schneider, Dr. phil. Stuttgart: E. Schweizerbart, 1883. Pp. 380.

That the Ethical Science of the future will be a very different thing from the "Moral System" of the past must be evident to those who have noted the recent course of inquiry in this department of practical philosophy. Mr. Spencer's *Data of Ethics* may not unfitly be called an epoch-making book, for never before was the Theory of Conduct so clearly conceived in its relation to the positive sciences, or so completely taken out of the hands of the abstract psychologist and metaphysician. The author of the book before us acknowledges his obligations to Mr. Spencer in no faint terms, and Dr. Schneider's "social-psychological investigation" may be regarded as a revision and amplification of the *Data of Ethics*. Ethics, according to the author, is rooted in Biology—understanding by Biology the doctrine of the conservation and evolution of life. Man must from first to last be conceived as higher animal: not only is this true physically but also psychically, for his supreme efforts are motived by impulses identical with those which induce the manifestations of vital activity on the lower plane of the brutes. The scholar and the artist, absorbed in their very special pursuits, are apt to enlarge on intellectual and aesthetic ends as the proper determinators of conduct, but the scholar and the artist are exceptional human beings; while it may be shown that they too practically confess that the struggle for subsistence, the contracting of family ties, and the rearing of children are the main business of life.

Shortly then, human duty, as animal instinct, is summed up in self-preservation and perpetuation of the species. This is the objective aspect of organic existence, the subjective concomitants being the feelings of Pleasure and Pain. Here our author finds his point of contact with Mr. Spencer, whose doctrine, that pleasures are the correlatives of actions favourable and pains are the correlatives of actions injurious to the organism, forms the *a posteriori* first principle on which his own, as the Spencerian, Ethics is based. Dr. Schneider signalises, however, two errors in Mr. Spencer's statement of this axiom. The English thinker is said to have overlooked the most important element in the Relativity of Pleasures and Pains, *viz.*, that we only attain to a consciousness of pleasurable feelings so far as a successive furtherance, a *change* for the better, or a simultaneous difference in our favour, occurs or is perceived, and the contrary in the case of pain—"that therefore pleasure only attains to consciousness through the want of it, and through suffering, and the latter only attains to consciousness through the want of it and through pleasure". Closely connected with this is another error, *viz.*, the regarding pain (or suffering) as injurious under all circumstances, and conversely pleasure or satisfaction as in all cases useful, with the inevitable consequence that slight passing pains are underestimated. The effect of these two considerations is to limit Mr. Spencer's principle and, one might add, to moderate his somewhat extravagant optimism.

The first chapter is entitled "Pleasure and Pain *(Freud und Leid)* as expression of furthered and impaired vital processes".

Here the fact that pleasures result from enhanced and pains from impeded vital processes is shown to be a deduction from the laws of Evolution, and is only valid so far as these laws (conditions of race-maintenance) extend. The unequal sensibility of various parts of the organism, the fact that injury to superficial organs is often attended with greater suffering than disease or derangement of central organs, and other mysteries in the psychology of feeling are here cleared up—a casual relation between the pleasures and pains and the need of protection or the chance of persistence of the organism being shown to obtain in the several cases.

In the second chapter the pessimists, as represented by Schopenhauer and Hartmann, are briefly brought to book. It having been shown, in ch. i., that Pain is as necessary as Pleasure according to law of Evolution, a few words may be expended on the question of their relative amount. This may be shortly settled by appeal to the first principle. As long as births increase faster than deaths, as long as individuals realise their expectations and nations grow in wealth and power, so long must there be an excess of pleasure; but when animal species are on the wane, or individuals lag behind in the race of life, or peoples cease to progress, the balance turns the other way. There is, no doubt, truth in this, but, of course, a positive or *plus* value of existence is not hereby made out; for, as the processes of decay and death must set in one day, and in the life of the individual have their inevitable turn, the net result is an equation of joy and sorrow *for this world as a whole.* This old duel of Optimism and Pessimism might, however, have been passed by without detriment to the course of our author's inquiry. Ch. iii. resumes the examination of the nature of Pleasure and Pain with a consideration of the "Relativity of Pleasures and Pains". Here the author emphasises the point already alluded to, that joy and suffering must be estimated in relation to antecedent feeling as well as the synchronous feelings of others. "Joy is not possible without sorrow." Contrast is essential for the consciousness of either. Hence a perfectly happy world is a psychological impossibility.

In ch. v., the relation of Feeling to Action is shortly discussed. The author refers to his previous works *Der thierische Wille* and *Der menschliche Wille* for a full discussion of this important subject. We understand his position to be that rational action is —not action directly controlled by conscious reason (for that is psychologically impossible) but—action governed by feelings between which and the particular action a relation conformable to the interests of the individual or of society is seen to subsist. Feelings *quâ* feelings never mislead, but only feelings which have acquired an abnormal influence owing to one-sided intellectual activity (passions). Misconduct is the result of morbidity rather than the consequence of imperfect knowledge. A natural sequel to this chapter is the following rather lengthy one, on the

"Subordination of Pleasures and Pains". Feelings and Impulses are first divided into instinctive and consciously-purposive. Each of these is then further sub-divided with reference to (1) self-preservation and (2) preservation of the species. This arrangement will yield therefore four species of Conduct—Instinctive Egoism, Instinctive Altruism, Intentional Egoism, Intentional Altruism. In all its forms, however, the principle of Subordination is one and the same, *viz.*, that of "Greater Perfection, *i.e.*, of more perfect race-maintenance". If we probe the preference accorded to Race-maintenance over Self-maintenance both by nature and by man's moral consciousness to the bottom, we find no other reason for it than the relative strength of extra and self-regarding feeling. If we ask why the maternal animal postpones its own interest to that of its offspring we must fall back upon the "Principle of Selection" for answer, upon the universal fact that only classes of animals exhibiting such a tendency survive in the struggle for existence. As Parental Affection is the foundation of Animal Progress, so is Human Progress dependent on the preference for the well-being of the body politic and of posterity to that of the individual and the existing generation. As far as domestic life is concerned there is a consilience between conscious egoism and conscious altruism, for a parent would usually be miserable who did not postpone selfish gratification to the welfare of his (or her) child. The extent of parental effort for the benefit of children, the author declares, should be determined by a consideration of the probable demands that will be made upon the latter, when arrived at maturity, on account of *their* descendants. The problem is far more complicated, however, when we come to the highest form of subordination, that of individual happiness to the happiness of society as a whole. The superiority of a Political State over Anarchy being assumed, there is by no means a short way to determine how far the nation or race is served by suppression of personal aims. The dangerous character of the ground is shown when our author comes to deal with the Socialist propaganda. He evidently approves of the present policy of the German government, which aims at forcibly suppressing "the social-democratic agitators". Why? Because "experience has shown that their ideas have not been able to find an echo and assent among the majority and especially among the majority of the more educated in modern civilised states". "Had the latter been the case," the author naïvely remarks, "governments would surely have ranged themselves on the side of the majority". But how is the majority ever to be obtained for any novel practical creed, if the state, represented by its government, sets its face against the "agitation" for changes which a present minority believes will be for the advantage of society?

I admit that I am here giving more prominence to a single illustration than is warranted by the space allotted to it in the book before us, but the case is one that reveals a serious difficulty in Evolutionary Ethics, where it has to deal with the more complex problems. As long as we remain within the sphere of unconscious instinctive-rational action, Might (stronger feeling) makes Right; but as Mind becomes conscious and reflective, the need of an inversion of the formula becomes apparent, for the Social Authority should weight that theory which seems to the most far-sighted to promise most for the welfare of coming generations. Dr. Schneider is not unaware of these difficulties, and his Social Ideal is after all an individual one, being no other than that of a healthy mind in a healthy body.

The next two chapters are devoted to the consideration respectively of "The Causes of the prominent Sufferings of existing civilised nations," and of "The Diminution of Sufferings and Increase of Delight". These chapters contain many excellent observations on current evils; and Dr. Schneider's practical prescriptions, if followed, would go far to make a happy world. No one will be found to controvert his affirmation that the perfectly sane man is he who is thoroughly competent to maintain himself and a vigorous family and efficiently perform all the offices of the citizen.

The few remaining chapters are of a more disputable, as they are of a more speculative, character. They are entitled "Fate and Destiny," "Death and Further Existence, and the Continuance of Joys and Sorrows after 'Death'," together with some concluding words headed "World-Judgment and World-Justice". It is scarcely necesssary to say that Dr. Schneider rejects the notion of immortality in any transcendent sense. The only "future life" is life in descendants. Nor is such a view believed insufficient to satisfy an emphatic demand of the moral consciousness that "as we sow, so shall we reap". We do reap as we sow: for are not we who reap the same bodily and spiritual elements who have been always working out our own salvation (or damnation) since the dawn of planetary life? Dr. Schneider must certainly be congratulated on having the full courage of his convictions. Perhaps such conclusions will become more tolerable as the dogma of earlier metaphysical schools, that individual consciousness is of man's essence, comes to be as discredited in theory as it is ignored in practice.

W. C. COUPLAND.

VI.—NEW BOOKS.

[*These Notes do not exclude Critical Notices later on.*]

The Methods of Ethics. By HENRY SIDGWICK, Knightsbridge Professor of Moral Philosophy in the University of Cambridge. Third Edition. London: Macmillan, 1884. Pp. xxx., 505.

A Supplement to the Second Edition of the Methods of Ethics. Containing all the important Additions and Alterations in the Third Edition. Pp. viii., 184.

The *Methods of Ethics*, which appeared in the Second Edition of about the same size as in the First, though the changes, as set out also in a separate *Supplement*, were very considerable, has now undergone a still more thorough revision, with changes which, though not extending to the whole 184 pp. of the new *Supplement*, again separately issued for the convenience of possessors of the previous editions, add, when the final balance is struck, quite 30 pp. to the size of the original work. The new matter will, it is hoped, very soon be duly examined in these pages, where former editions of the work have not been overlooked. Meanwhile the author's own account of the distinctive features of the present issue is quoted:—"In this third edition, I have again made extensive alterations, and introduced a considerable amount of new matter. Some of these changes and additions are due to modifications of my own ethical or psychological views; but I do not think that any of these are of great importance in relation to the main subject of the treatise. And by far the largest part of the new matter introduced has been written either (1) to remove obscurities, ambiguities, and minor inconsistencies in the exposition of my views which the criticisms of others or my own reflection have enabled me to discover; or (2) to treat as fully as seemed desirable certain parts or aspects of the subject which I had either passed over altogether or discussed too slightly in my previous editions, and on which it now appears to me important to explain my opinions, either for the greater completeness of my treatise,—according to my own view of the subject,—or for its better adaptation to the present state of ethical thought in England. The most important changes of the first kind have been made in chaps. 1 and 9 of Book i. ['Introduction,' 'Good'], chaps. 1—3 of Book ii. ['Principle and Method of Egoism,' 'Empirical Hedonism'], and chaps. 13 and 14 of Book iii. ['Philosophical Intuitionism.' 'The Summum Bonum']: under the second head I may mention the discussions of the relation of intellect to moral action in Book i. chap. 3, of volition in Book i. chap. 5, of the causes of pleasure and pain in Book ii. chap. 6, of the notion of virtue in the morality of Common Sense in Book iii. chap. 2, and of evolutional ethics in Book iv. chap. 4 (chiefly)."

Proceedings of the Society for Psychical Research. Parts iv.-vi. London: Trübner, 1883, 4.

Since reference was last made in MIND XXXII., 621, to the *Proceedings* of this Society, three more Parts have appeared. In these are especially to be noted the accounts of "Experiments on Thought-Transference," by Mr. Malcolm Guthrie of Liverpool (iv., v.), followed by the account of Prof. Lodge's further trials with Mr. Guthrie's two chief "percipients". Whatever interpretation is to be put upon the facts reported, it is not easy to see how they could have been more carefully investigated than by Mr. Guthrie, or afterwards more rigidly tested than by the practised experimental skill of Dr. Lodge. The other most notable piece among the varied contents of these Parts is the "Theory of Apparitions" set out at length (nearly 60 pp.) in vi. by Messrs. E. Gurney and F. W. H. Myers. Here the authors, deferring the case of apparitions of the dead, seek to connect certain representative cases of "phantasms of the living," through a graduated series of other related experiences as mean terms, with the simple experimental facts of "thought-transference," under one general conception of "Telepathy". The mediation of the extremes is worked out with no little skill, and that the object is pursued with a strictly scientific intention may be credited by readers of this Journal who are familiar with the work of one of the writers. It is not possible, however, to regard the "physical theory" here set up to account for the facts as very satisfactory. Not to dwell upon the looseness of the conception of "Telepathy"—which does not seem very well calculated to cover affections where distance of the supposed agent, beyond the recognised range of any of the senses, is the salient fact, with others, as in experimental "thought-transference," where, be the ordinary senses involved or not, distance is not a consideration—we are asked to suppose that one man may have (subjective) experience of a phantasm on occasion of what is being consciously or unconsciously) experienced by another, through "telepathic impulse" received from the active brain of this other by the higher centres of the brain of the first, whence it works down to the lower sense-centres implicated in the experience of the particular kind of phantasm. Before such a supposition can be dignified with the name of a "physical theory," some conceivable means of transference should be suggested, but even more necessary does it seem that some definite relationship of similarity should be made out between the mental experiences in agent and patient with which their brain-states correspond. Now very rarely, in the cases cited, is there any such relationship, nor is the real difficulty to any extent removed by all the clever piecing of evidence and sometimes subtle psychological suggestion to be met with in this Report. The time to judge of the authors' whole case, and especially of the weight of the communicated testimony, will be when both are published at length in the book they promise on "Phantasms of the Living". Meanwhile one is disposed to suggest that more valuable than any farther cumulation of such narratives as are here given, on not a few of which there might be a good deal to remark, would be some very rigid experimentation with that remarkable person who can produce at will the effects upon other minds mentioned in passing at pp. 166, 171. He seems to be exactly the subject upon whom *scientific* determination of the facts of "telepathic impulse" could be made, or at least begun.

On the Origin and Growth of Religion as illustrated by the Native Religions of Mexico and Peru. "Hibbert Lectures" delivered at Oxford and London, in April and May, 1884. By ALBERT RÉVILLE, D.D., Professor of the Science of Religions at the Collège de France. Translated by PHILIP H. WICKSTEED, M.A. London: Williams & Norgate, 1884. Pp. 256.

Three of these interesting (and very well translated) Lectures are occupied with the Mexican, and three with the Peruvian, religion; the last of the six including also, from p. 240 to p. 256, a statement of general conclusions drawn from the study of the two systems. The author, regarding both religions as purely autochthonous and uninfluenced from without, finds in the many analogies that can be traced between them and those of the Old World only proof of the similarity of conditions, internal and external, under which the invincible religious impulse in human nature has everywhere worked. Light is gained especially on the notion of Sacrifice, which is found to be devoid originally of all moral significance, though this came to be added later. Both religions confirm the view that spiritual monotheism is a third and final stage reached through anthropomorphic polytheism from the first stage of all, animistic nature-worship, "of which fetichism is not the base, as it has been called, but the consequence and application".

An Introduction to Mental Philosophy on the Inductive Method. By J. D. MORELL, A.M., LL.D., Author of *History of Philosophy, &c.* ("Stewart's Educational Series"). London: W. Stewart, 1884. Pp. ix., 389.

A modified reprint of the author's treatise of the same name published in 1862, as is thus intimated at the end of the Preface:—"To render this edition more useful as an Examination Text-book, I have asked the aid of a London University-graduate, and an experienced tutor, to eliminate from the text what may seem unnecessary or confusing to the student, and to throw the whole into the form suited to the requirements of the London B.A. and other examinations in which psychology is taken as a subject." The concession in point of "form" to the London postulant does not go beyond "elimination"; there is added, however, for his special behoof—whatever be the Degree, high or low, he has in view—a bulky Appendix (pp. cvii.) of actual Examination-papers of late years, and these (for greater convenience) not confined to the merely psychological matter of the treatise. The work, when it first appeared, had the merit of importing into this country some novel ideas from Herbartian sources. These might now have been referred to—as might also the work of physiologists—in somewhat different language than was natural in 1862 when the Preface, here reproduced without date, was written.

Modern Theories of Philosophy and Religion. By JOHN TULLOCH, D.D., LL.D. Edinburgh and London: Blackwood, 1884. Pp. xiv., 444.

A collection of nine essays (mostly reprints from the *Edinburgh Review*) brought together as bearing on "the great question of contemporary thought . . . Is there a spiritual world? Is there a metaphysical as well as a physical basis of life? Is Reason or Soul, in other words, an entity and not a mere manifestation of nervous force—a life behind all other life, and not merely the highest and most complex phase of natural life?" They are written with all the fluency to be expected of the author, and if with not quite the mild tolerance, the place and manner of their first appearance should be borne in mind. "Auguste Comte and Positivism," "Modern Scientific Materialism," "Pessimism," "Morality without Metaphysic," "Professor Ferrier and the Higher Philosophy," "Back to Kant; or, Immanuel Kant and the Kantian Revival"—are among the subjects treated. Kant is approved of with a certain condescension, as from some superior height which is nowhere very exactly defined, and with reservations. Of English thinkers, or of English originality, at least since the time of Hume, Dr. Tulloch has but a poor opinion, though he recognises a valiant champion of spiritual philosophy here and there and detects of late a promise of better things.

Essai sur les Formes a priori de la Sensibilité. Par CHARLES DUNAN, Agrégé de Philosophie, Professeur de Philosophie au Collège Stanislas, Docteur ès-lettres. Paris : Alcan, 1884. Pp. 227.

A well-written essay, designed to show that space and time are not the *a priori* forms of sensibility for which Kant contended, but rather universal characteristics of our representations, springing from an anterior and more fundamental form of mental activity. The question as to the true ultimate nature of space and time should not, as by Kant, be raised with the other question whether they are pure data of representation devoid of objective reality—as to which, the author first argues at length, no doubt can be maintained. Maintaining then (against M. Ribot) that the philosophical question as to the nature of space is really involved in the issues of the physio-psychological conflict between Nativism and Empiricism, and himself deciding for the middle position of Projectionism (after Volkmann, Donders, &c.), he urges that the intuition of time is given simultaneously with that of space, and that the two have accordingly one and the same origin. This origin is the one fundamental process of "multiplex unity and unified multiplicity" manifested in every act of mental representation—a process the two moments of which are familiar in science or reflective knowledge as analysis and synthesis. The process is not a law governing the phenomena of mind from without, but is a law inherent to thought itself ; mind and thought being identical, and thought being one and multiplex because mind is one and multiplex, that is to say, imperfect. From the consideration then arising, how one and the same thought can give rise at once to the intuition of time and of space, or, in other words, of the Ego and the universe, the author next passes to the problem of the categories, where he finds that judgment can only be the extension of the attributes of mind itself to the totality of external things. The doctrine so set forth is idealism, but, it is argued, not an idealism that involves the negation of an external world, in the only sense in which the existence of such can rightly be maintained.

La Morale dans le Drame, l'Épopée et le Roman. Par LUCIEN ARRÉAT. Paris : Alcan, 1884. Pp. 219.

M. Janet and also Mr. Galton have urged the importance of utilising the rich store of psychological observation deposited in the masterpieces of literary art, and in this work the author employs the creations of the poet and novelist as a class of moral experiments that may serve to test the philosophical systems of morality. Whereas the moral agent of the philosophers is a pure abstraction, the dramatic character departs from the concrete individual of real life no more and not otherwise than as in a scientific experiment actual bodies are placed in specially controlled circumstances for the more exact study of particular aspects of their nature. From this point of view, the author, with easy movement over the literary field and at the same time with good philosophic insight, takes up in succession "The Sources of our Moral Activity," "The Ends of Duty," "Moral Obligation," "Moral Conflict," "The Sanction of Conscience," "Dramatic Justice," "The Mechanism of Will," "The Sanction of a Future Life". His own philosophic object is to show how a "positive morality" —based on a recognition of the intellectual craving or logical intuition resulting in the idea of Justice, as well as of those instincts of self-preservation and reproduction that give rise to Egoism and Sympathy—should penetrate into the details of conduct, instead of remaining content, like the intuitionalist systems, with some vague and general rules of common sense.

Emanuele Kant. Per CARLO CANTONI, Professore di Filosofia all' Università di Pavia. Volume terzo. Milano: Hoepli, 1884. Pp. 436.

Prof. Cantoni here completes the very careful and exhaustive exposition he has been making of Kant's whole philosophical doctrine: the earlier volumes were noted in MIND XVI. 601; XXX. 310. The present volume begins with "Philosophy of Religion" (pp. 1-161), treated in dependence upon the Ethical doctrine in vol. ii.; next takes up the *Critick of Judgment* (pp. 162-340); and brings together the various "Minor Doctrines" (Anthropology, Pædagogy, Philosophy of History) in short compass before concluding with a general survey of the whole field (pp. 381-436). This final chapter is marked by the same vigour of thought and expression that characterises the detailed criticism which, according to the plan of the book, follows upon each greater part of the exposition; but while the author is a thoroughly independent critic, as the "Kantian" with whom he likes to hold express dialogue often finds, he is at heart so much at one with the master that in the central thought, as he takes it, of the system—the supremacy of the practical over the theoretic reason, however untrammeled this in its own sphere—he finds the idea which it most concerns the votaries of positive science at the present time, and especially in Italy, to ponder. To the physical realism and naturalistic pantheism prevailing in Italy, he desires to oppose a "metaphysical moralism" or "moral metaphysic" on Kantian lines, the working out of which is reserved for a special treatise to follow.

Die Menschenlehre oder die Anthropologie. Von ROBERT GRASSMANN. Stettin: R. Grassmann, 1884. Pp. viii., 432.

This volume is one of a connected series of works (already published or still to come) only one of which, *Die Formenlehre*, referred to by Mr. Venn in *Symbolic Logic*, seems thus far to have been made in any way known in this country; but neither in the country of their origin do they appear to have drawn the attention of *Fachmänner*. This may be partly due to the fact that the writer (not to be confounded with H. Grassmann, author of *Die lineale Ausdehnungslehre*, 1844, and other works) is himself no professional philosopher, but the busy editor (and also publisher) of no less than three newspapers of considerable circulation, one of them a daily. His manifold labours, all the same, have not prevented him from producing within a few years the various works mentioned incidentally in the present volume, *viz.*, *Die Formenlehre oder Mathematik*, 1872 (1876?), transformed into *Die Wissenslehre* in a new edition to appear in the present year; *Das Weltleben oder die Metaphysik*, 1881; *Das Tierleben oder die Physiologie der Tiere u. Menschen*, 1883. Upon the present volume is announced to follow within the year, *Die Verkehrslehre*, and later on will come *Die Staatslehre* in two parts (*Die Rechtslehre* and *Die Reichslehre*); all these last, from and including *Die Menschenlehre*, making up *Die Sittenlehre*, within the author's whole system of knowledge, to which he gives the general title of *Die Gebäude des Wissens.* Begun thus with *Menschenlehre*, the *Sittenlehre* is given out as 5th volume of the system, which suggests that the earlier parts of the system are ordered or designated somewhat otherwise than appears in the titles of the three earlier books quoted above; but, however this may be, the notion is got of a single-handed effort of construction sufficiently ambitious in character. We must be content, for the present and till better-informed regarding its other parts, to have given a general notion of its range as far as this can be gathered from allusions in the present volume. As to the *Menschenlehre* it may be added that, after a long Introduction, which fills more than half the book—containing a demonstration of the freedom of human spirits as real beings among the other real beings, not free, composing the system of nature (the demonstration being condensed, as the author claims, for the first time in history, into a definite mathematical formula); containing also a highly detailed theory of the relations of soul and spirit (distinguished from one another) to the nervous system—the doctrine falls into four sections entitled, *Die Genusspflege, Die Arbeitspflege, Die Gestaltungspflege, Die Bewusstseinspflege*, dealing respectively with the sensual enjoyments depending on the contained visceral system, with the higher life of sense dependent on the containing bodily system with its active members subject to the controlling mind, with the inner elaboration of sense-impressions (in memory, idealisation, thought and science), and, lastly, with the manifestations of consciousness in general as a unity. The book abounds in assertions which it is little to describe as bizarre, and presents confusions of thought from which the author might have been saved by a little more patient study of the "Herren Philosophen" whom he would leave behind. Yet it is impossible to read more than a few pages of his peculiar diction without recognising in him a strenuous and in his way acute thinker from whom there is not a little to be learned. Especially at the present time it is of interest to meet with one who is not content to proclaim in general terms the monadological conception but essays to work it out into all the details of a scientific theory of the world, life and mind.

Handbuch der Moral. Von Dr. ADOLF ROTHENBÜCHER. Cottbus: Jaeger, 1884. Pp. 223.

The author, who is at the head of an institution for the higher instruction of girls in the town of Cottbus in Prussia and has distinguished himself by his zeal and intelligence as an educator, brings here a wide range of philosophical reading and no little vigour and independence of thought, with warmth and vivacity of written style, to the task of inculcating a practical doctrine of morals. The book falls into four Parts: (1) "Foundations of Morality"; (2) "Conditions of Moral Action"; (3) "Morality and Virtues"; (4) "Education in Morality". The aim is thoroughly practical—to edify and produce a disposition, more than to instruct; but throughout the treatise, many striking side-lights are thrown upon questions of moral theory. Most remarkable is the manner in which the author is able to combine with strenuous recognition of plain scientific fact the maintenance of a high ideal. The physical and social bases of morality are brought specially into view in Part i.; while in Part ii. "Freedom" and "Conscience" are discussed with sobriety and candour. Towards the close, the exposition becomes more suffused with emotion, but the author's enthusiasm has always light shining through it.

Biologische Probleme zugleich als Versuch zur Entwicklung einer rationellen Ethik. Von W. H. ROLPH. Zweite, stark erweiterte Auflage. Leipzig: Engelmann, 1884. Pp. vi., 238.

This second much-enlarged edition of a work which originally appeared in 1882, had for the most part been got ready by the author when he succumbed to pulmonary disease in 1883; Prof. v. Giżycki of Berlin has attended to the revision of the remainder and seen the whole through the press. Son of an English father (but of a German mother and born at Berlin in 1847, educated too in Germany and advanced to the position of *Privat-docent* of Zoology in the University of Leipsic before ill-health broke up his career), Dr. Rolph had first meant to write in English a merely critical discussion of some ethical views, with more especial reference to Mr. Spencer's *Data of Ethics*, but was led on to an independent investigation of what seemed to him the underlying biological questions, and the result was published in German. The scope of his whole inquiry may be gathered from the titles of the eight chapters in which the book is disposed: (1) Doctrine of Evolution, (2) Subjective Systems, (3) H. Spencer's Hedonism, (4) Problems of Nutrition, (5) Problem of Perfection, (6) Problem of Propagation, (7) Animal or Natural Ethic, (8) Human Ethic. He completely accepts the theory of Evolution but departs in important respects from Darwin's presentation of it: Mr. Spencer is charged with not sufficiently excluding teleological considerations, utterly as these are to be abjured, according to the author, alike in the ethical and in the biological field. So resolute an attempt by a naturalist to deduce an ethical rule of conduct from the conditions of life has a peculiar interest, and critical examination is only deferred.

Die Ethik des Protagoras u. deren zweifache Moralbegründung kritisch untersucht von ADOLF HARPF. Heidelberg: Weiss, 1884. Pp. 72.

A careful study of the ethical doctrines of Protagoras, undertaken not only as furnishing the necessary complement to his better-known theory of knowledge but as having a special interest in the present condition of ethical inquiry and affording the author the means of impressing some considerations which he thinks of importance for its future progress. The more immediate task consists in reconciling the apparently antagonistic "naturalism" and "normalism" of the great sophist's ethical views as reported in the two Platonic dialogues *Protagoras* and *Theætetus* respectively, and showing the connexion of the two-sided doctrine with his general philosophical position of Relativism. The lesson to be impressed is carefulness in the use of descriptive rubrics in philosophy, to mark oppositions which when probed to the bottom turn out not to be real oppositions at all. A somewhat elaborate parallel is drawn in the second part of the study (pp. 40-71) with the Kantian Ethics, which is found by the author to present a similar doubleness of aspect and to suggest the like precaution: not, however, that in either case the deeper consistency is perfectly maintained, or that the Protagorean doctrine is to be elevated to the importance of Kant's achievement. Though marred in places by involution of statement, the study is to be commended as a thorough piece of work. Frequent acknowledgments are made to Grote, and the relation, among English thinkers, particularly of Hobbes and Hutcheson to Protagoras is well brought out.

Der Pessimismus in Vergangenheit u. Gegenwart. Geschichtliches u. Kritisches von O. PLUMACHER. Heidelberg: Weiss, 1884. Pp. xii., 355.

Frau Plumacher's work is intended as a merely provisional substitute for the wide-ranging "History of Pessimism" that cannot, she thinks, be effectively written till the passionate excitement of present conflict has died down. It falls, after a short Introduction, into two parts. In the first (pp. 18-178) she traces the historical development of Pessimism, in Antiquity (Oriental, Greek and Jewish), Christianity, Science and Poetry, till it finally assumes perfected philosophical form in Hartmann, preceded by Schopenhauer and followed by Bahnsen, Mainländer and others. Part second (pp. 179-348) presents a critical survey of the multitude of recent attempts to discredit the philosophy of Pessimism from the point of view of Naturalistic, of Ethical, of Religious and of Panlogistic Optimism; all of them, according to the authoress, failing in one point or another to understand the historical genesis of the doctrine and its advance upon the earlier and less developed forms. In conclusion, while allowing the possibility that at some later stage of mental evolution the metaphysical conditions of Pessimism (as regards beginning and end of the world-process and the relation of being and appearance) may undergo transformation, she expresses her conviction that, as an inductively reasoned judgment upon the worth of things as actually experienced, Hartmann's eudaemonological Pessimism is the absolutely highest form that philosophical doctrine can assume.

Genie u. Wahnsinn. Eine psychologische Untersuchung von Dr. PAUL RADESTOCK. Breslau: Trewendt, 1884. Pp. vii., 78.

The author, whose previous works *Schlaf u. Traum* and *Die Gewöhnung u. ihre Wichtigkeit für die Erziehung* have been noticed in MIND XVI. 588; XXVI. 315, takes here as the subject of a third psychological monograph that relation of Genius and Madness which has not only often suggested itself to common sense, but in later times been categorically asserted by various thinkers and argued more especially by alienists of distinction. Within limited compass (pp. 1-52), but with a rather elaborate support of confirmatory references and illustrative citations (pp. 53-78), the subject is first treated on a basis of biographical facts, classified and critically sifted, next touched upon physiologically, and then discussed in its psychological aspects. After all reservations made upon the different lines, the author comes to the conclusion that the relation asserted must be allowed, and in view of their psychological affinities as traced has little to suggest as marking the difference between the genius and the madman except that "by their fruits shall ye know them". The greater the mental affinity, and the more clearly established the danger of passage from the one class to the other, the more important, he urges as the moral of his inquiry, is it that by careful educational training the genius should be strengthened to escape the personal consequences that lie so close to the performance of grand achievements for the race.

Psychologisch-ästhetische Essays. Von Dr. SUSANNA RUBINSTEIN. Zweite Folge. Mit dem Bildnisse der Verfasserin. Heidelberg: Winter, 1884. Pp. 278.

The authoress published a first series of Essays, of similar character to these, in 1878, which drew considerable attention; one of them, "The Life of the Senses," setting forth the fundamental idea that varieties of mental habit, as consciously felt or manifested outwardly, are to be traced back for nations and individuals alike to differences of sense-endowment. The subjects of the present series are—"Fortunes of Presentations," "Time and Space," "Kinds of Movement," "Psychology of the Sexes," "Passion and Affection," "Natural History of Wit," "Greek Phantasy," "Indian Phantasy". The Essays show sound knowledge of the present state of psychological science, with much delicacy of observation.

Allgemeine Grundzüge der Ethnologie. Von ADOLF BASTIAN, Prof. Dr. Prolegomena zur Begründung einer naturwissenschaftlichen Psychologie auf dem Material des Völkergedankens. Berlin: Dieterich Reimer, 1884. Pp. xxiv., 144.

Six chapters on "Geographical Provinces," "Tools," "Property," "Marriage," "Law," "Religion," with exhaustive supplement of supporting authorities, designed anew to impress the untiring author's conception of psychology as needing for its scientific basis a systematic induction of ethnological facts.

Received also :—

W. H. O. Sankey, *Lectures on Mental Disease, 2nd Ed.*, London: H. K. Lewis, pp. 454.

F. v. Wieser, *Ueber den Ursprung u. die Hauptgesetze des wissenschaftlichen Werthes*, Wien: Hölder, pp. xiv. 214.

VII.—CORRESPONDENCE.

"WHAT IS AN EMOTION?"

Previous to the appearance (in MIND XXXIV.) of Dr. James's article on "What is an Emotion?" I had reached results agreeing *in general* with those presented by him, through a consideration of the Emotions from a developmental standpoint. A brief summary of my argument may interest some of your readers.

Those who accept the Darwinian hypotheses of descent will grant that the lower forms of life, from which the higher species have descended, were probably without power of active motion through their habitat. In such a race certain tendencies to *general* activities with reference to the approach and departure of objects advantageous and detrimental would very probably arise and be emphasised by selection. On broad lines these advantageous tendencies may be indicated as follows :—

Upon the approach of an advantageous object, an increase from normal to hypernormal general activity ;

Upon the departure of an advantageous object, a decrease from hypernormal towards normal general activity ;

Upon the approach of a detrimental object, a decrease from normal to subnormal general activity ;

Upon the departure of a detrimental object, an increase from subnormal to normal general activity.

Such tendencies, it may be supposed, would appear when the conditions correspond with those described, even if the animal had reached a condition where greater activity was habitual.

A race which had reached that higher stage of development which is indicated by the ability to move through its habitat, would be benefited by certain other tendencies which would therefore be fostered by selection ; for example, we should look for tendencies to act—

(1) To bring about approach to an advantageous object ;
(2) To drive away a detrimental and weaker object ;
(3) To produce flight from a detrimental and overpowerful object.

Under the same hypotheses it may be argued that each muscular act would have a concomitant feeling in the conscious life to which it belonged, and that each co-ordinated complex of actions thus described would have its concomitant co-ordinated feeling.

When we turn to the consideration of man we find that certain definite feelings in ourselves correspond with the environmental conditions above described, and that the muscular states which accompany these feelings correspond to those which we supposed would in the lower animals arise under these same environmental conditions ; thus, we being passive, the perception—

(a) Of the approach of an advantageous object is accompanied by the feeling of Joy ;

(b) Of the departure of an advantageous object is accompanied by the feeling of Sorrow ;

(c) Of the approach of a detrimental object is accompanied by the feeling of Dread ;

(d) Of the departure of a detrimental object is accompanied by the feeling of Relief ;

and these feelings are accompanied by changes of *general* muscular activity as follows :—

Joy—by indications of an increase to hypernormal activity ;
Sorrow—by indications of a decrease to a lower grade ;
Dread—by indications of a decrease to a subnormal activity ;
Relief—by indications of an increase from subnormal towards normal activity.

Again : When an advantageous object is within reach we feel Love for it, and tend to move towards it.[1]

When an enemy, weaker or well-matched, is within reach we are conscious of the feeling of Anger and have a tendency to act to drive the object from us.

When a stronger enemy approaches we experience the definite feeling of Fear and we fly from the object.

This consideration at once suggests the query whether these Emotions may not be merely the feelings of the complex muscular actions with which they are connected. To draw conclusions of logical value from an argument resting so largely upon hypothesis is manifestly impossible ; but the suggestion thus derived may prove valuable if it be found to be corroborated by observation in other directions. Upon examination we find the suggestion to be favoured by the facts (1) that the vividness of the feeling bears a direct relation to the strength of the muscular action ; (2) that each noticeable difference of action is accompanied by a difference of emotional feeling ;[2] and (3) that a set of actions brought about by "accident" or by "will" is accompanied by the same feelings which would be experienced were the acts such as are said to be caused by, or to express, the feelings.

Can we draw conclusions from these results applicable to all Emotions? The account given above evidently covers but a part of the ground. The subject, however, cannot be adequately treated in small compass and cannot be attempted here, and although it might be carried much further[3] it is evident that we should be prevented from making any *complete* treatment on this line by the lack of accurate knowledge of the development of our race and of the conditions of our prehistoric ancestry.

Notwithstanding the incompleteness of the results from the initial method, the evidence from the other sources had confirmed me in the belief that emotions are, at least in their greatest part, made up of muscular feelings, and in fact seemed sufficient to warrant the acceptance of this definite working hypothesis : *All emotions are no more nor less than the feelings of the accompanying muscular actions.*

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[1] If the definition of Love here implied be correct, it is evident that much feeling which goes by that name is only so called because of indirect combination or connexion with the feeling here described ; the connexion, and cause of identity of name, however, being assignable in all cases which I have examined. Sexual Love is a particular form of this general feeling —differentiated by the presence of the tendency to act with sexual reference.

[2] The feeling accompanying the crouching from before an enemy is not the same as that accompanying the flight from the enemy although ordinarily each would be designated as Fear ; nor can Rage with its violent action be called the same feeling as Hatred with its quieter appearances.

[3] Surprise, for instance, may be defined as *the feeling of the muscular acts of efficient attention.*

Dr James's reasonings, and particularly his method of introspective conclusion, afford further strong arguments in favour of the acceptance of this wider law.

HENRY RUTGERS MARSHALL.

NEW YORK, 22*nd July*, 1884.

VISUAL SPACE-PERCEPTIONS IN THE DARK.

In my *Space and Vision* published in 1872, I contended that our perception of Space depends on Sight only, the perceived object being the sensitive surface of the retina. One of my arguments in favour of this view was founded on the Space-perceptions which we experience in the dark, in relation to which I mentioned some observations of my own at pp. 37-38. I have recently met with a strong confirmation of this view by one who on this subject is both a high and unprejudiced authority, and would ask for permission to insert the passage as Mr. Galton's observations are in striking accord with my own. In his recent work, *Inquiries into Human Faculty and its Development*, pp. 158-9, he writes thus: "When in perfect darkness, if the field of view be carefully watched, many persons will find a perpetual series of changes to be going on automatically and wastefully in it. I have much evidence of this. I will give my own experience first which is striking to me because I am very unimpressionable in these matters. I visualise with effort; I am peculiarly inapt to see 'after-images,' 'phosphenes,' 'light-dust,' and other phenomena due to weak sight or sensitiveness; and again before I thought of carefully trying I should have emphatically declared that my field of view in the dark was essentially of a uniform black, subject to an occasional light-purple cloudiness and other small variations. Now, however, after habituating myself to examine it with the same sort of strain that one tries to decipher a signpost with in the dark, I have found out that this is by no means the case but that a kaleidoscopic change of patterns and forms is continually going on, but they are too fugitive and elaborate for me to draw with any approach to truth. I am astonished at their variety and cannot guess in the remotest degree the cause of them. They disappear out of sight and memory the instant I begin to think about anything, and it is curious to me that they should often be so certainly present and yet be habitually overlooked." Mr. Galton finds in these phenomena an explanation of the hallucinations of visionaries, on which topic they no doubt throw much light.

W. H. S. MONCK.

VIII.—MISCELLANEOUS.

Mr. James Thornton, High Street, Oxford, who published three years ago a handsome reprint of Hobbes's *Leviathan* (now followed by a cheaper Student's Edition), will this winter issue impressions of two other of Hobbes's works, edited by Dr. Ferdinand Tönnies, which will be much more than reprints. Dr. Tönnies, to whose acute and scholarly "Remarks on the Philosophy of Hobbes," we drew attention at the time they began to appear in the *Vierteljahrsschrift für wiss. Philosophie*, iii. 4 (1879, continued in iv. 1, iv. 4 and v. 2) found—as the present writer from examination of a MS. at Hardwick had also independently found—that the two treatises printed, in 1650 and ever afterwards, separately as *Human Nature* and *De Corpore Politico* were originally and properly parts of one single treatise entitled *The Elements of Law, Natural and Politic*, which had been circulated in written form in 1640, some months before the calling of the Long Parliament. The fact is of great significance for the true understanding of the development of Hobbes's thought (as explained in the article on Hobbes in the new edition of the *Encyclopædia Britannica);* but Dr. Tönnies farther found by a careful comparison of no less than five MSS. copies in the British Museum, with a reference also to the Hardwick MS., that the printed text of the composite treatise, as it has hitherto passed and been taken up by Molesworth into the standard edition, is faulty at many points, especially in the part that has become classical in psychological literature under the name of *Human Nature.* He has sought, then, by a painstaking collation to obtain as pure a text as possible, and this it is that will appear, before Christmas, in the first of the volumes announced. The other volume, to appear a little later, is of an interest second only to that of the first. It will give the pure text of *Behemoth,* from what Dr. Tönnies believes is the original MS. of the work, now preserved in St. John's College, Oxford. This characteristic work of Hobbes's old age, which, being held back by royal command, first saw the light surreptitiously some months before his death in 1679 and was afterwards printed with a somewhat better text in 1682, will now for the first time appear in its completeness, with many errors corrected and deficient passages supplied, some of which Dr. Tönnies has had trouble in restoring from the erased state in which they appear even in this MS.—erased, as he supposes, for political reasons and therefore now of more interest to be restored. The sub-title (after *Behemoth)* will be *Or the Long Parliament* instead of *The History of the Causes of the Civil Wars &c.*, as heretofore. To the *first* volume will be appended an original imprint, from a collection of MSS. tracts in the British Museum, of what appears to be the earliest philosophic or scientific writing by Hobbes, in which he was groping his way to his later mechanical theory of Sense. Dr. Tönnies first drew attention to the tract in 1879, and, in now printing it for the first time, will add farther a series of illustrated extracts from the extensive MS. treatise on Optics, composed in English by the year 1646, part of which was in modified form afterwards incorporated by Hobbes in the *De Homine* (1658) and of which otherwise only two or three pages have before been printed (by Molesworth). EDITOR.

Messrs. Longmans have just published, at last, a "People's Edition" of Mill's *System of Logic*, uniform with the like-named edition of the *Principles of Political Economy* on sale for many years back. The *Logic* runs to 622 of the double-columned pages, Prefaces (to the First, Third and Fourth, and Eighth Editions) with Contents occupying xvi. pp. more.

The Aristotelian Society for the Systematic Study of Philosophy held the last (business) meeting of its Fifth Session on June 23. The members of the Committee were re-elected, and a program agreed upon, for the ensuing, Sixth, Session, which commences on Monday, Oct. 20; when the President will deliver an Address on "The Relation of Philosophy to Science, Physical and Psychological". The program for the Session is as follows. In the historical department, seven evenings will be devoted to the study of Schopenhauer's *Welt als Wille u. Vorstellung*, taking as the subject for each evening a portion of the English translation of vol. i.; the remaining evenings will be appropriated to the discussion of original communications in the theoretical department.

Since the death of Prof. Ulrici, who conducted it for so many years, the oldest of German philosophical journals, *Zeitschrift für Philosophie u. philosophische Kritik*, has come under the exclusive editorship of Prof. A. Krohn of Kiel.

Mr. Henry Jones, M.A., late Clark Fellow of the University of Glasgow, has been appointed to the chair of Mental and Moral Philosophy in the new University College of North Wales, at Bangor.

REVUE PHILOSOPHIQUE.—IXme Année, No. 7. V. Brochard—De la croyance. J. Delboeuf—La matière brute et la matière vivante: L'origine de la vie et de la mort. Ch. Secrétan—La restauration du Thomisme. Analyses et Comptes-rendus (H. Spencer, *Principes de Sociologie*, iii.; A. Sidgwick, *Fallacies*, &c.). Correspondance (Lettre de M. de Pressensé sur *Les Origines*). No. 8. E. Beaussire—L'indépendance de la morale. Th. Ribot—Les bases affectives de la personnalité. Rev. générale (G. Tarde—Travaux récents sur le socialisme contemporain). Analyses. Notices bibliographiques. No. 9. J. Delboeuf—La matière brute et la matière vivante: La naissance et la mort. P. Tannery—La physique de Parménide. G. Lechalas—L'oeuvre scientifique de Malebranche. Analyses, &c. Notices bibliog. Variétés (D'Alembert—Réflexions inédites sur la théorie de la musique).

LA CRITIQUE PHILOSOPHIQUE.—XIIIme Année, Nos. 22-32. L. Dauriac—De l'idee de nécessité (22); Psychologie et pédagogie (30). C. Renouvier—Henri-Frédéric Amiel (25, 29). F. Pillon—Affirmation et volition (27). F. Grindelle—Deux nouveaux manuels d'éducation morale et civique (28).

LA FILOSOFIA DELLE SCUOLE ITALIANE.—Vol. XXIX., Disp. 3. L. Ferri—Platonismo di Ficino. Dottrina dell'amore. T. Ronconi—Della proposizioni. P. Ragnisco—La teleologia nella filosofia moderna. T. Mamiani—Di nuovo della imputabilità umana. A. Macchia—Lettera quinta ad uno studente di Università. Bibliografia, &c.

ZEITSCHRIFT FÜR PHILOSOPHIE, &c.—Bd. LXXXIV., Heft 1. O. Michalsky—Kant's Kritik der reinen Vernunft u. Herder's Metakritik (i.). Th. Achelis—Ueber die Naturphilosophie der Gegenwart (ii.). M. Braig—Der Pessimismus in seinen ethischen Grundlagen. Recensionen, &c. Heft 2. O. Michalsky—Kant's K. d. r. V. u. Herder's Metakritik (ii.). Th. Achelis—Ueber die Naturphilosophie, &c. (iii.). J. Witte—Arthur Schopenhauer. E. Dreher—Das Wesen u. die Bedeutung des Skepticismus. E. Zöller—Ein schwedischer Bibelforscher: Viktor Rydberg u. sein

Werk. H. Keferstein—Noch einmal die "Widerlegung des Idealismus" in der 2ten Ausgabe von Kant's *K. d. r. V.* J. Witte—Der Gesammtcharakter von Kant's Lehre im Lichte von K. Fischer's neuster Kritik derselben. Recensionen. Bd. LXXXV., Heft 1. O. Michalsky—Kant's Kritik, &c. (Schluss). H. Fischer—Lessing's Philosophie (i.). R. Wahl—Prof. Bilfinger's Monadologie u. prästabilirte Harmonie in ihrem Verhältnisse zu Leibniz u. Wolf. H. Gallwitz—Die Transcendentalphilosophie u. die Ethik. Borelius—Zur Lehre vom Widerspruch. G. H. Schneider—Die psychologische Ursache der Contrast-Erscheinungen (i.).

PHILOSOPHISCHE MONATSHEFTE.—Bd. XX., Heft 6, 7. H. Siebeck—Ueber das Verhältniss von Naturgesetz u. Sittengesetz. R. Eucken—Zur Charackteristik der Philosophie Trendelenburg's. P. Natorp—Ueber das Princip u. die Kosmologie Anaximander's. C. Schaarschmidt—Ueber die Möglichkeit der Metaphysik. Recensionen, &c. (A. Seth, *The Development from Kant to Hegel*, &c.). Literaturbericht. Bibliographie, &c. Heft 8, 9. A. Rausch—Ueber die ethische Werthschätzung der Eugeneia u. des Plutos bei den Sokratikern u. Peripatetikern. Th. Achelis—Bewusst u. Unbewusst. Recensionen, &c. Literaturbericht. Bibliog., &c.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—G. v. Giżycki—Ueber den Utilitarismus. A. Marty—Ueber subjectlose Sätze u. das Verhältniss der Grammatik zu Logik u. Psychologie (iii.). G. Heymans—Zurechnung u. Vergeltung (iv.). Anzeigen. Selbstanzeigen, &c.

PHILOSOPHISCHE STUDIEN (herausg. von W. Wundt).—Bd. II., Heft 2. W. Wundt—Zur Geschichte u. Theorie der abstracten Begriffe. R. Körner—Die logischen Grundlagen der Systematik der Organismen. L. Lange—Ueber die wissenschaftliche Fassung des Galilei'schen Beharrungsgesetzes. W. Wundt—Erfundene Empfindungen. E. Kraepelin—Zur Frage der Gültigkeit des Weber'schen Gesetzes bei Lichtempfindungen.

ERRATA IN VOL. IX.

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